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American Society of Hospital Pharmacists

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IN THIS ISSUE

Ethical Standards, Professional Conduct and Responsibilities of the Hospital Pharmacist 445
George F. Archambault

Labeling Responsibilities of the Hospital Pharmacist 456
James W. Mitchener

And What About Administration? 459
M. R. Kneifl

Representative Hospital Formularies of the 18th and 19th Centuries 462
Alex Berman

Reserpine Dosage—Important Notice from FDA 465

Combining the Effects of Cobalt-60 and Chlorobutanol for Sterilizing Ophthalmic Solutions 466
John W. Webb and C. V. Hayes

An Improved Method for Prepackaging Drugs for Rapid Filling of Requisitions 472
Frances P. Nicholas and Francesca Sayoc

Safety Practices in Hospital Pharmacy 474

ASHP Affiliates 484
As the President Sees It 486
Current Literature 483
Drug Evaluations 417
Editorial 443
Letters 441
New Members 498
News Items 487
Positions 500
Therapeutic Trends 479
Timely Drugs 481

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Tablets: 50 and 100 mg., bottles of 25 and 100.

References: 1. Kass, E. H.: Am. J. Med. 18:764, 1955. 2. Diggs, E. S., Prevost, E. C., and Valderas, J. G.: Am. J. Obst. 71:399, 1956.

DRUG EVALUATIONS

by the Council on Pharmacy and Chemistry of the American Medical Association

The following monographs and supplemental statements on drugs have been authorized by the Council on Pharmacy and Chemistry of the American Medical Association for publication and inclusion in *New and Nonofficial Remedies*. They are based upon the evaluation of available scientific data and reports of investigations. In order to make the material even more valuable, dosage forms and preparations of individual drugs have been added to the monographs. These dosage forms and preparations were not taken from material published in the *Journal of the American Medical Association* by the Council on Pharmacy and Chemistry; rather, they were obtained from such manufacturers' brochures, news releases, etc., which were available to us at the time of publication. An attempt has been made to make the list of dosage forms as complete as possible. However, no guarantee can be made that the list of preparations is complete and it is suggested that hospital pharmacists consult manufacturers' releases for additional dosage forms and preparations.

The issues of the *Journal of the American Medical Association* from which each monograph has been taken is noted under each monograph. Monographs in this issue of THE BULLETIN include those published in the *Journal* to August 1, 1956.

INDEX TO EVALUATED DRUGS, THIS ISSUE

418 Aminopentamide Sulfate
418 Betazole Hydrochloride
420 Carbetapentane Citrate
418 Centrine Sulfate
420 Corticotropin-Zinc Hydroxide
420 Cortrophin-Zinc
422 Dimethicone, in ammonia dermatitis
424 Glutavene
424 l-Glutavite
418 Histalog Hydrochloride
422 Mephentermine Sulfate, as vasopressor agent
422 Methylbenzethonium Chloride, additional uses of
422 Periclor
422 Petrichloral
424 Phenergan Hydrochloride
424 Promethazine Hydrochloride
424 Sodium Glutamate
426 Sulfamethizole
426 Thiosulfil
420 Toclase Citrate

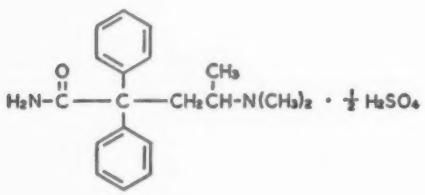
INDEX TO EVALUATED DRUGS PUBLISHED IN THE MAY-JUNE AND JULY-AUGUST ISSUES OF THE BULLETIN

164 Acetazolamide (May-June)
166 Acetazolamide Sodium (May-June)
166 Adrenosem Salicylate (May-June)
280 Amebiasis Therapy (July-Aug.)
166 Antihistaminics, in transfusion reactions (May-June)
274 Bicillin-Vee (July-Aug.)
260 Busulfan (July-Aug.)
166 Carbazochrome Salicylate (May-June)
168 Chloramphenicol, intramuscular use (May-June)
168 Chloramphenicol Palmitate (May-June)
168 Chloromycetin Palmitate (May-June)
197 Chlorpromazine, blood dyscrasias associated with (May-June)
168 Chlorpromazine Hydrochloride (May-June)
180 Choledyl (May-June)
266 Cholographin Methylglucamine (July-Aug.)
264 Colace (July-Aug.)
176 Cortef Fluid (May-June)
260 Cryptenamine Acetates (July-Aug.)
264 Cryptenamine Tannates (July-Aug.)
184 Cytellin (May-June)
192 Delvinal (May-June)
164 Diamox (May-June)
166 Diamox Sodium (May-June)
172 Dimethicone (May-June)
264 Dioctyl Sodium Sulfosuccinate (July-Aug.)
172 Dipaxin (May-June)
172 Diphenadione (May-June)
264 Doxinate (July-Aug.)
190 Elorine Methylsulfate (May-June)
282 Epilepsy Therapy (July-Aug.)
272 Equanil (July-Aug.)
266 Ethchlorvynol (July-Aug.)
174 Ethinamate (May-June)
176 Hydrocortisone, intramuscular use (May-June)
176 Hydrocortisone Acetate, in ganglion (May-June)
176 Hydrocortisone Cyclopentylpropionate (May-June)
176 Hydrocortisone Sodium Succinate (May-June)
266 Iodipamide Methylglucamine (July-Aug.)
178 Isoproterenol, in pulmonary emphysema (May-June)
292 Leukemia Therapy (July-Aug.)
266 Mechlorethamine Hydrochloride (July-Aug.)
178 Mephenesin Carbamate (May-June)
272 Meprobamate (July-Aug.)
180 Meratran Hydrochloride (May-June)
272 Mercaptopurine (July-Aug.)
276 Milontin (July-Aug.)
272 Miltown (July-Aug.)
186 Miokon Sodium (May-June)
266 Mustargen Hydrochloride (July-Aug.)
178 Mycostatin (May-June)
260 Myleran (July-Aug.)
298 Nausea and Vomiting (of pregnancy) Therapy (July-Aug.)
178 Nystatin (May-June)
180 Oxtriphylline (May-June)
182 Paskalium (May-June)

182 Paskate (May-June)
190 Pathilon Iodide (May-June)
274 Penicillin V (July-Aug.)
274 Pen-Vee-Oral (July-Aug.)
274 Phenoxymethyl Penicillin (July-Aug.)
276 Phensuximide (July-Aug.)
180 Pipradrol Hydrochloride (May-June)
266 Placidyl (July-Aug.)
182 Potassium Aminosalicylate (May-June)
272 Purinethol (July-Aug.)
182 Selenium Sulfide, in seborrhea (May-June)
172 Silicote (May-June)
184 Sitosterols (May-June)
186 Sodium Diprotrizoate (May-June)
186 Sodium Radio-Phosphate (P^{32}) (May-June)
176 Solu-Cortef (May-June)
184 Sterols, plant, use of (May-June)
276 Tetrahydrozoline Hydrochloride (July-Aug.)
168 Thorazine Hydrochloride (May-June)
178 Tolseram Carbamate (May-June)
190 Tricyclamol Methylsulfate (May-June)
190 Tridihexethyl Iodide (May-June)
278 Triethylene Melamine (July-Aug.)
276 Tyzine Hydrochloride (July-Aug.)
260 Unitensen Acetates (July-Aug.)
264 Unitensen Tannates (July-Aug.)
174 Valmid (May-June)
274 V-Cillin (July-Aug.)
192 Vinbarbital (May-June)
192 Xanthines, in coronary disease (May-June)

Aminopentamide Sulfate Centrine® Sulfate

AMINOPENTAMIDE SULFATE is 4-dimethylamino-2, 2-diphenylvaleramide sulfate. The structural formula of aminopentamide sulfate may be represented as follows:



Actions and Uses

Aminopentamide sulfate is a synthetic base amide with predominantly atropine-like pharmacological actions. Thus, in experimental animals, the drug produces a decrease in tone and motility of the gastrointestinal tract, blocks the spasmogenic and vasodepressor responses to acetylcholine, and causes mydriasis and xerostomia. In normal humans, its oral administration results in decreased gastric secretion and reduced motility of the upper digestive tract.

On the basis of limited clinical experience, aminopentamide sulfate appears to be useful in the adjunctive management of peptic ulcer, pylorospasm, and chronic hypertrophic gastritis associated with gastric hyperacidity and hypermotility. Present evidence is insufficient to establish its usefulness in other types of organic or functional disorders of the gastrointestinal tract. Its proposed use in conditions characterized by urinary bladder spasm is not yet established.

Side-effects from aminopentamide sulfate are mainly atropine-like in character, and their incidence and severity are chiefly a function of dosage. Accordingly, blurring of vision, dryness of the mouth, and urinary retention may occur. The drug is contraindicated in patients with glaucoma, obstruction at the bladder neck, prostatic hypertrophy, stenosing peptic ulcers, or pyloric or duodenal obstruction.

Dosage

Aminopentamide sulfate is administered orally. The usual initial dose for adults is 0.5 mg. three or four times daily; however, dosage must be highly individualized according to the degree of response and the appearance and severity of side-effects. If therapy is to be prolonged, dosage may be adjusted to the individual patient by increasing the amount administered until xerostomia or mydriasis appears, then decreasing the dose to a maintenance level. Dosage for children is proportionate to body weight.

Preparations for use as stated for the foregoing drug are marketed under the following name: Centrine.

Bristol Laboratories Inc. cooperated by furnishing scientific data to aid in the evaluation of aminopentamide sulfate.

—*J. Am. Med. Assoc.* *161*:970 (July 7) 1956.

Preparations

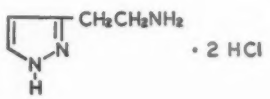
Solution Aminopentamide (Centrine) Sulfate 0.5 mg. per 0.7 ml. (10 drops); 30 ml. dropper bottles.

Tablets Aminopentamide (Centrine) Sulfate 0.5 mg.

Tablets Aminopentamide (Centrine) Sulfate 0.5 mg. with Phenobarbital 15 mg.

Betazole Hydrochloride Histalog® Hydrochloride

BETAZOLE HYDROCHLORIDE is 3-(β-aminoethyl) pyrazole dihydrochloride.—The structural formula of betazole hydrochloride may be represented as follows:



Actions and Uses

Betazole hydrochloride, an analogue of histamine, can be used in place of histamine in clinical tests of gastric secretion. The drug effectively stimulates the secretion of hydrochloric acid with much less tendency to the side-effects usually observed after the use of histamine. In addition, betazole produces no significant fall in blood pressure and only minimal increases in pulse rate.

In usual doses, betazole hydrochloride produces a gastric secretory response that is at least as great as that produced by the usual doses of histamine. During the first hour after a single injection, the response is quantitatively similar, but evidence suggests that a greater output of free acid is maintained after a lapse of 2 hours or more. The drug occasionally stimulates gastric secretion in patients who do not respond to histamine.

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Schering

HO-J-61-286

Although the incidence of side-effects with betazole is much lower than with histamine, the nature of these is qualitatively similar. Flushing, sweating, and a sense of warmth are observed in about 20% of patients receiving the drug. Headache occurs in about 3% of such patients. Rarely, urticaria, faintness, and syncope follow the use of this agent. The drug should be used cautiously in patients with bronchial asthma. The effect of antihistaminic drugs in combating the side-effects has not been determined.

Dosage

Betazole hydrochloride may be administered by intramuscular or subcutaneous injection; the latter route is usually employed. In general, a dose of 0.5 mg. per kilogram of body weight will evoke the same gastric secretory response as the usual dose of 0.01 mg. of histamine base per kilogram or 0.0275 mg. of histamine phosphate per kilogram. Because of its wide margin of safety, most clinicians usually administer a standard dose of 50 mg. of betazole hydrochloride to all patients of normal weight. If this does not produce the desired response in large individuals, an increased amount may be administered.

Preparations for use as stated for the foregoing drug are marketed under the following name: Histalog.

Eli Lilly & Company cooperated by furnishing scientific data to aid in the evaluation of betazole hydrochloride.

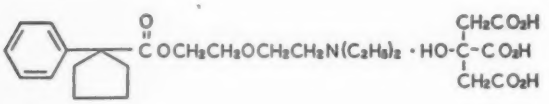
—*J. Am. Med. Assoc.* *161*:458 (June 2) 1956.

Preparations

Injection Betazole (Histalog) Hydrochloride 50 mg. per ml.; 1 ml. ampuls.

Carbetapentane Citrate — Toclase® Citrate

CARBETAPENTANE CITRATE is 2-(diethylaminoethoxy) ethyl 1-phenylcyclopentyl-1-carboxylate citrate. — The structural formula of carbetapentane citrate may be represented as follows:



Actions and Uses

Carbetapentane citrate, a phenylcycloalcane carboxylic acid ester, is proposed for use as an antitussive agent. Pharmacological studies indicate that the drug has atropine-like and local anesthetic properties. Its toxicity is low, and in certain types of animal experiments it appears to relieve cough about as well as codeine phosphate. The drug is reported to act selectively on the medullary centers to suppress the cough reflex, but sufficient evidence is not available to establish this.

Available clinical evidence suggests that the effectiveness of the drug is limited to the acute type of cough associated with common upper respiratory infections. Since the clinical observations are uncontrolled, improvement of cough after administration of the drug might be attributed equally to subsiding infection. Further and better-controlled observations are needed to establish the clinical usefulness of carbetapentane citrate for the alleviation of cough.

Dosage

Carbetapentane citrate is administered orally. The proposed dosage for adults is 15 to 30 mg. three or four times daily. Dosage for children is reduced proportionally.

Preparations for use as stated for the foregoing drug are marketed under the following name: Toclase.

Pfizer Laboratories, Division of Chas. Pfizer & Company, Inc., cooperated by furnishing scientific data to aid in the evaluation of carbetapentane citrate.

—*J. Am. Med. Assoc.* *161*:970 (July 7) 1956.

Preparations

Expectorant Compound Carbetapentane (Toclase) Citrate 7.25 mg. per 5 ml. with 16.67 mg. Terpin Hydrate and 2.45 mg. Chloroform per teaspoonful.

Syrup Carbetapentane (Toclase) Citrate 7.25 mg. per 5 ml.

Tablets Carbetapentane (Toclase) Citrate 25 mg.

Corticotropin-Zinc Hydroxide

Cortrophin-Zinc®

CORTICOTROPIN-ZINC HYDROXIDE is a preparation of purified corticotropin adsorbed on zinc hydoxide.

Actions and Uses

Corticotropin-zinc hydroxide elicits the same metabolic effects and is used for the same indications as other corticotropin preparations. Because of its combination with zinc hydroxide, however, absorption after parenteral administration is apparently delayed. Its action is thus prolonged, and therapy may be maintained with less frequent administration, with similiar precautions and similar dangers. (See the monograph on corticotropin in New and Nonofficial Remedies.) The duration of action in those patients whose conditions require high dosage, for example, those with acute disseminated lupus erythematosus and acute asthma, appears to be shorter than in those requiring lower dosage, for example, those with rheumatoid arthritis.

Dosage

The potency of corticotropin-zinc hydroxide is expressed in terms of activity equivalent to a specified number of U. S. P. units of corticotropin. It is administered intramuscularly and should not be mixed with other medicaments before administration. As with other corticotropin preparations, dosage must be individualized for each patient according to the severity of symptoms and therapeutic response. The usual initial dose is 40 U. S. P. units injected once daily intramuscularly as a suspension. Once symptoms have been controlled, the interval between injections should be increased and the dosage reduced.

Preparations for use as stated for the foregoing drug are marketed under the following name: Cortrophin-Zinc.

Organon, Inc., cooperated by furnishing scientific data to aid in the evaluation of corticotropin-zinc hydroxide.

—*J. Am. Med. Assoc.* *161*:458 (June 2) 1956.

Preparations

Injection Corticotropin-Zinc Hydroxide (Cortrophin-Zinc) 40 U.S.P. U. per ml. with zinc 2 mg. (as hydroxide) per ml.; 5 ml. vials.

'Co-Deltra'

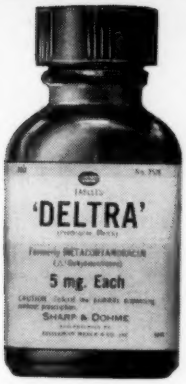
(Prednisone, Buffered)

1956

'Co-Hydeltra'

(Prednisolone, Buffered)

1956



Deltra®

(Prednisone, Merck)

1955

'Hydeltra'

(Prednisolone, Merck)

1955

Alflorone®

Acetate
(Fludrocortisone Acetate, Merck)

1954

for a complete Rx stock

Multiple Compressed Tablets of 'Co-Deltra' and 'Co-Hydeltra' are two new antacid-steroid formulations designed to minimize the gastric distress often encountered with prednisone and prednisolone. CO-DELTRA, CO-HYDELTRA, DELTRA, HYDELTRA, ALFLORONE, HYDROCORTONE and CORTONE represent important prescription volume. Stock the complete line and be assured of unquestioned acceptance by both physician and patient.

HydroCortone®

(Hydrocortisone, Merck)

1952

Cortone®

Acetate
(Cortisone Acetate, Merck)

1950

MERCK SHARP & DOHME
DIVISION OF MERCK & CO., Inc.
PHILADELPHIA 1, PA.

Dimethicone

Prevention of Ammonia Dermatitis with

The Council has reevaluated the use of the silicone oil, dimethicone, for topical application as a 30% concentration in a petrolatum base for the management of ammoniacal dermatitis resulting from the bacterial decomposition of urine in contact with the skin, especially in infants. The Council previously had questioned the usefulness of the agent for this purpose because of opinions that it might be irritating to the skin. On the basis of the additional opinions of pediatricians, the Council concludes that use of the agent on the intact skin usually is not associated with irritant effects; thus it can be used for the prevention of urinary ammonia dermatitis in infants as well as incontinent adults. The agent, however, may be irritating if applied to areas of preexisting ammoniacal dermatitis.

The Council voted to revise the New and Nonofficial Remedies monograph on dimethicone accordingly.

Arnar-Stone Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of dimethicone.

—*J. Am. Med. Assoc.* 161:971 (July 7) 1956.

Mephentermine Sulfate

Use as a Vasopressor Agent

The Council has evaluated the parenteral use of mephentermine sulfate as a systemic vasopressor agent. This drug has been recognized previously for local intranasal application as a vasoconstrictor agent to control nasal congestion. On the basis of additional evidence, the Council concluded that the systemic effects of mephentermine sulfate when injected parenternally have been sufficiently well studied to indicate its usefulness as a pressor agent in acute hypotensive states. This includes adjunctive use in shock after myocardial infarction and hypotensive episodes during surgery. Administration of the drug should be discontinued when the patient no longer shows clinical evidence of shock. The drug produces peripheral vasoconstriction as well as a positive inotropic effect on the heart. The drug also is useful for sustaining blood pressure during surgical or obstetric procedures in patients under general or spinal anesthesia. In contrast to epinephrine, mephentermine sulfate does not appear to initiate ventricular fibrillation during cyclopropane anesthesia. It is contraindicated in peripheral vascular collapse in which hypotension is caused by hemorrhage.

For systemic pressor effects, mephentermine sulfate is administered intravenously or intramuscularly. In acute hypotensive states associated with myocardial infarction, surgery, and general or spinal anesthesia, the drug should be administered by slow intravenous injection in doses ranging from 15 to 30 mg. This may be repeated if the desired elevation in blood pressure is not obtained. For sustaining blood pressure, 30 mg. is diluted with 100 cc. of 5% dextrose in water for injection and administered by continuous intravenous drip at a rate adjusted to maintain pressure. For less rapid but more prolonged pressor effects, 15 to 45 mg. may be injected intramuscularly.

The Council voted to expand the monograph in New and Nonofficial Remedies to recognize the parenteral use of mephentermine sulfate as a vasopressor agent in acute hypotensive states.

Wyeth Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of mephentermine sulfate as a vasopressor agent.

—*J. Am. Med. Assoc.* 161:971 (July 7) 1956.

Methylbenzethonium Chloride

Additional Uses of

The Council has evaluated additional uses of methylbenzethonium chloride, a quaternary ammonium compound, for rinsing undergarments and bed linen of incontinent adults and for topical application in the prevention and treatment of dermatitis caused by irritation from urine, feces, and perspiration. The Council previously has recognized the use of this nonvolatile, antibacterial agent for making a 1:25,000 diaper rinse in the prevention of ammonia dermatitis (diaper rash) in infants. On the basis of currently available evidence, the Council concluded that the use of this compound for rinsing diapers or garments and for topical application is justified in the prophylaxis as well as in the treatment of dermatitis caused by the bacterial break-down of ammonia in the urine of infants and incontinent adults. Sufficient evidence is also available to warrant its use for treatment of miliaria (prickly heat) and erythema intertrigo (chafing) caused by perspiration and stool contamination. For topical application, an ointment containing 1 mg. per gram or a 0.055% dusting powder may be applied ad libitum to the skin of the genitalia, rectum, thighs, and intertriginous areas.

The Council also was requested to evaluate the usefulness of methylbenzethonium chloride as a rinse to impart wide antibacterial properties to autoclaved surgical garments and laundered hospital linens for reducing the incidence of surgical wound infection and odors. A review of the evidence indicated need for continued investigation to establish the usefulness of the agent for these purposes.

The Council voted to expand the monograph in New and Nonofficial Remedies to recognize the additional use of methylbenzethonium chloride for rinsing garments of incontinent adults and for topical application to infants and adults in the prevention and treatment of dermatitis caused by contact with urine, feces, and perspiration.

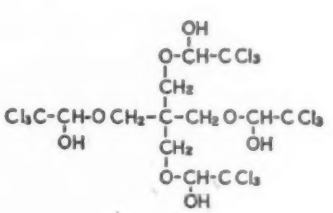
The Diaparene Company, Division of Homemaker's Products Corporation cooperated by furnishing scientific data to aid in the evaluation of additional uses of methylbenzethonium chloride.

—*J. Am. Med. Assoc.* 161:459 (June 2) 1956.

Petrichloral

Periclor®

PETRICHLORAL is pentaerythritol chloral. The structural formula of petrichloral may be represented as follows:



THORAZINE*...*dramatic in emergencies*

vomiting
alcoholism
severe pain
hiccups
acute excitement
status asthmaticus

	Package Size	Price to Hospital
Ampuls 1 cc. 25 mg.	Boxes of 6 Packages of 100 **Packages of 500†**	$3.12 box 44.00 pkg. **195.00 pkg.**
Ampuls 2 cc. 50 mg.	Boxes of 6 Packages of 100 **Packages of 500†**	4.38 box 62.00 pkg. **240.00 pkg.**
Suppositories 25 mg.	Boxes of 6	1.23 box
Suppositories 100 mg.	Boxes of 6	1.53 box
Syrup 10 mg./5 cc.	4 fl. oz. bottles	1.53 each
Tablets 10 mg.	Bottles of 50 Bottles of 500 **Bottles of 5000†**	2.13 each 20.24 each **170.00 each**
Tablets 25 mg.	Bottles of 50 Bottles of 500 **Bottles of 5000†**	3.03 each 28.79 each **243.00 each**
Tablets 50 mg.	Bottles of 50 Bottles of 500 **Bottles of 5000†**	3.63 each 34.20 each **270.00 each**
Tablets 100 mg.	Bottles of 50 Bottles of 500 **Bottles of 5000†**	4.83 each 46.32 each **366.00 each**
Tablets 200 mg.	Bottles of 500 **Bottles of 5000†**	64.85 each **510.00 each**

†Available only to *non-profit* (tax exempt) institutions for use within the institution.

Smith, Kline & French Laboratories, Philadelphia

*T.M. Reg. U.S. Pat. Off. for chlorpromazine, S.K.F.

Actions and Uses

Petrichloral, a derivative of chloral, is a hypnotic and sedative with pharmacological properties similar, but not necessarily equal, to those of chloral hydrate. Since it is devoid of strong odor and aftertaste and undesirable side-effects such as gastric upset, it is better tolerated than chloral hydrate. Like chloral hydrate, petrichloral has a wide margin of safety, and its low toxicity indicates it to be a safe agent for clinical practice.

Dosage

Petrichloral has been administered orally. The proposed hypnotic dose is 0.6 gm. on retiring. For daytime sedation, 0.3 gm. every 6 hours has been employed.

Preparations for use as stated for the foregoing drugs are marketed under the following name: Periclor.

Ives-Cameron Company, Division of American Home Products Corporation, cooperated by furnishing scientific data to aid in the evaluation of petrichloral.

—*J. Am. Med. Assoc.* *161*:970 (July 7) 1956.

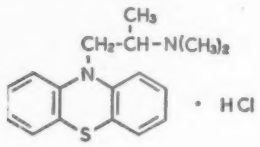
Preparations

Capsules Petrichloral (Periclor) 0.3 Gm.

Promethazine Hydrochloride

Phenergan® Hydrochloride

PROMETHAZINE HYDROCHLORIDE, N.F. is 10-(2-dimethylaminopropyl) phenothiazine hydrochloride.—The structural formula of promethazine hydrochloride may be represented as follows:



Actions and Uses

Promethazine hydrochloride, one of the phenothiazine group of compounds, exerts a histamine-antagonizing action of somewhat longer duration than that of most other drugs of this pharmacological class. It is useful for the treatment of all types of allergic conditions amenable to therapy with antihistamines. These include urticarial dermatoses, pruritic lesions, allergic rhinitis, and drug reactions. Like other antihistamines, its usefulness in asthma is decidely limited. (See the general statement on histamine-antagonizing agents in New and Nonofficial Remedies.)

Promethazine hydrochloride has been found useful for the treatment of both airsickness and seasickness. Its clinical usefulness in the treatment of vertigo caused by other vestibular disturbances has been evaluated. It has been used to control postoperative nausea and vomiting.

Like other antihistamines, promethazine hydrochloride depresses the central nervous system, its activity in this respect being somewhat more pronounced than that of many of the other histamine-antagonizing agents. Although the drug may produce drowsiness in many patients, it is not to be regarded as primarily a sedative. Other side-effects occasionally observed with other antihistamines may occur. To date, there have been no reports of jaundice, hypotensive episodes, or blood dyscrasias associated with the use of this agent.

Dosage

Promethazine may be administered orally, intramuscularly, or intravenously. For allergic conditions amenable to therapy with antihistamines, the average oral dose is 25 mg., taken before retiring, followed by 6.25 or 12.5 mg. the next day, as required to control symptoms. As an alternative, 12.5 mg. after meals and on retiring may also be administered.

For the treatment or prophylaxis of motion sickness, the average oral dose for adults is 25 mg. two or three times daily. The initial dose should be taken 30 to 60 minutes before boarding ship or plane and may be repeated 8 to 12 hours later if necessary. On succeeding days of travel, 25 mg. may be taken on arising and before the evening meal

For those patients suffering from acute allergic disorders in whom the oral route is not feasible, a dose of 12.5 to 25 mg. for adults may be administered intravenously or intramuscularly. This may be repeated within 2 hours if necessary, but oral therapy should be substituted as soon as possible. To minimize postoperative nausea and vomiting, intramuscular doses of 25 mg. one-half hour before surgery and repeated at intervals of 1 to 4 hours as necessary have been used. Dosage for children by all routes of administration is reduced proportionately. Because of associated drowsiness, promethazine hydrochloride, like most antihistaminics, should not be administered to persons operating vehicles or machines requiring constant alertness.

Preparations for use as stated for the foregoing drug are marketed under the following name: Phenergan Hydrochloride.

Wyeth Laboratories, Inc., cooperated by furnishing scientific data to aid in the evaluation of promethazine hydrochloride.

—*J. Am. Med. Assoc.* *161*:457 (June 2) 1956.

Preparations

Cream Promethazine (Phenergan) Hydrochloride 2%; 30 Gm. tubes.

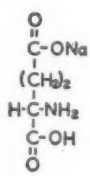
Syrup Promethazine (Phenergan) Hydrochloride 6.25 mg. per 5 ml.

Tablets Promethazine (Phenergan) Hydrochloride 12.5 mg. and 25 mg.

Sodium Glutamate

Glutavene®
l-Glutavite®

SODIUM GLUTAMATE is monosodium-L-glutamate—The structural formula of sodium glutamate may be represented as follows:



Actions and Uses

Sodium glutamate, the monosodium salt of L-glutamic acid, is used for the symptomatic treatment of encephalopathies associated with diseases of the liver. Although the biochemical nature of the metabolic disturbance is complex and imperfectly known, some cases have been found to be associated with elevated blood ammonia levels. In the central nervous system, excessive ammonia is associated with symptoms of lethargy, confusion,

announcing

the new
10-ml.
multiple-dose
vial of

Pyribenzamine® Injectable Solution

hydrochloride

(tripelennamine hydrochloride CIBA)

Pyribenzamine, long a standard in antihistamine therapy, is now offered in a 10-ml. multiple-dose vial of Injectable Solution for

—even greater economy

—flexibility of dosage

For preventing anticipated blood transfusion reactions 1 ml. (25 mg.) of Pyribenzamine Injectable Solution is injected intravenously or through the air-vent needle directly into the bottle of blood to be transfused.

For rapid and prolonged relief of allergic symptoms (as in urticaria; allergic rhinitis; bronchial asthma; dermatitis venenata; drug, serum, hyposensitization reactions) 1 ml. (25 mg.) of Pyribenzamine Injectable Solution twice daily is usually sufficient. This dosage can be doubled or halved to meet individual circumstances. It may be injected intravenously or intramuscularly.

Supplied: INJECTABLE SOLUTION:
Multiple-dose Vials, 10 ml., each ml. containing 25 mg. Pyribenzamine hydrochloride; cartons of 1, 6 and 50.
Ampuls, 1 ml., 25 mg. per ml.; cartons of 5.

CIBA
SUMMIT, N. J.

and ultimately coma and convulsions. The role of sodium glutamate in alleviating these symptoms is thought to be related to promotion of glutamine synthesis from glutamate and ammonia. This detoxication mechanism is known to function in vitro in brain slices from experimental animals. Whether this reaction occurs in vivo in the central nervous system of man is not known. In both man and animals, however, the administration of glutamic acid or its salts is followed by a fall in the blood ammonia level.

Sodium glutamate has been found useful in clearing mental symptoms and lowering blood ammonia levels in a small number of comatose patients with liver diseases associated with ammoniacal azotemia. There is no evidence that the drug has any effect on the ultimate course of the disease. Its symptomatic effectiveness has been most pronounced in patients in whom mental symptoms have been precipitated by circulatory nitrogenous loads of exogenous origin. These include administration of ammonium chloride or protein hydrolysates, internal hemorrhage, or high-protein diet.

Evidence is lacking that the glutamate ion per se produces any serious toxic effects in man. Administration of the sodium salt, however, represents a serious potential danger that is associated with the cation sodium. Since sodium glutamate is metabolized to yield, in effect, equivalent amounts of sodium, its metabolic effects are similar to those produced by the administration of equimolar quantities of sodium bicarbonate. In the dosage employed in the therapy of hepatic encephalopathies, these effects may result in a serious and even life-endangering alkalosis and hypokalemia. It is therefore important for the physician using this salt to observe closely the acid-base status of the patient and to determine the blood carbon dioxide, chloride, sodium, and potassium levels at frequent intervals. The intravenous administration of large amounts of sodium might also be quite dangerous to a patient with cirrhosis of the liver and attendant fluid retention. Sodium glutamate is contraindicated in patients with anuria, oliguria, or signs of renal insufficiency.

The limited clinical experience with sodium glutamate appears to confirm the good theoretical basis for its administration; however, since the drug has been employed in only a relatively small number of cases, the demonstration of even its temporary benefit has necessarily been limited to a small number of patients. Its use is not indicated in patients with hepatic disease that is not associated with elevated blood ammonia levels and when the danger of severe electrolyte disturbance is great. Although oral administration of the drug would seem preferable to intravenous administration, dosage by the oral route has not been sufficiently studied to permit a definite declaration of the average dose. In addition, the gravity of hepatic encephalopathies frequently precludes oral therapy.

Dosage

Sodium glutamate is administered intravenously. The initial average dose for adults per 24 hours is 29 gm. For administration, a solution containing 29 gm. of sodium glutamate in 100 cc. of water is diluted with 1,000 cc. of 5 or 10% dextrose in water for injection. The diluted solution, containing 170 mEq. of sodium, is then slowly infused by intravenous drip over a period of 4 hours. In some cases, it may be necessary to infuse additional amounts of the drug; however, this should be done cautiously, and no more than 58 gm. of the sodium salt should be administered in any 24-hour period.

Preparations for use as stated for the foregoing drug are marketed under the following name: Glutavene.

Gray Pharmaceutical Company cooperated by furnishing scientific data to aid in the evaluation of sodium glutamate.

—*J. Am. Med. Assoc.* 161:458 (June 2) 1956.

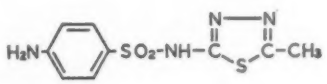
Preparations

Injection Sodium Glutamate (Glutavene)

Powder Sodium Glutamate (1-Glutavite); carton of 30 individual packets. Each packet contains monosodium *levo*-glutamate 3.48 Gm.; niacin 45 mg.; thiamine mononitrate 0.6 mg.; riboflavin 0.8 mg.; ascorbic acid 30 mg.; ferrous sulfate 11 mg.; and dicalcium phosphate 910 mg.

Sulfamethizole — Thiosulfil®

SULFAMETHIZOLE is N'-(5-methyl-1,3,4-thiadiazol-2-yl)-sulfanilamide. — 2-Sulfanilamido-5-methyl-1,3,4-thiadiazole. The structural formula of sulfamethizole may be represented as follows:



Actions and Uses

Sulfamethizole shares the actions and uses of other sulfonamide derivatives. (See the general statement on sulfonamides in New and Nonofficial Remedies.) Its high solubility makes it useful for the treatment of urinary tract infections. Thus, the drug may be effectively employed in cases of pyelonephritis, ureteritis, prostatitis, cystitis, and urethritis caused by bacterial infections amenable to sulfonamide therapy. It may be administered to patients with urinary tract infections who are sensitive to other sulfonamides, since current evidence suggests little cross sensitization to sulfamethizole. Except for crystalluria, which is rare, the drug possesses the same potentiality for toxic reactions as the other sulfonamide compounds.

Dosage

Sulfamethizole is administered orally. The usual dose for adults is 0.5 gm. five or six times daily, although some clinicians have achieved satisfactory results with doses as low as 0.25 gm. four times daily. The dosage for infants and children is reduced proportionately.

Preparations for use as stated for the foregoing drug are marketed under the following name: Thiosulfil.

Ayerst Laboratories, Division of American Home Products Corporation, cooperated by furnishing scientific data to aid in the evaluation of sulfamethizole.

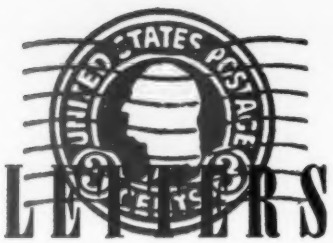
—*J. Am. Med. Assoc.* 161:971 (July 7) 1956.

Preparations

Solution, Ophthalmic and Nasal, Sulfamethizole (Thiosulfil) 40 mg. per ml.; 15 ml. dropper bottles.

Suspension Sulfamethizole (Thiosulfil) 0.25 Gm. per 5 ml.

Tablets Sulfamethizole (Thiosulfil) 0.25 Gm.



Request for Affiliation

DEAR SIRS: The San Diego Society of Hospital Pharmacists, believing in the objectives of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and having faith in the SOCIETY's ability to further these objectives, hereby applies for affiliation with the national organization.

It is the wish of the members of the San Diego Society of Hospital Pharmacists that they have the opportunity and privilege of becoming the fiftieth Chapter of the parent SOCIETY. It would be a great honor for our Society—coming from the "Golden State"—to become the Golden Chapter.

Enclosed are the Constitution and By-Laws of the San Diego Society of Hospital Pharmacists and the roster of charter members. These members are already members of the American Pharmaceutical Association and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, or they have submitted applications for membership recently as indicated on the enclosed roster.

CLIFTON A. ASCHE, *Secretary*

San Diego Society of Hospital Pharmacists
230 Solendad Place
Coronado, California

Liked Editorial

DEAR SIRS: I have been wanting to write to you for some time since receiving the January-February issue of THE BULLETIN. Your editorial on "Substitution and the Formulary System" was one of the best of its kind that has been written. . .

JENNIE M. BANNING, *Chief Pharmacist*

Saginaw General Hospital
Saginaw, Michigan

Compliments

DEAR SIRS: I would like to cancel my membership in the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS for purely personal reasons. It has been a great pleasure to associate with this fine organization. Please keep up the good work!

JAY Y. HOMYO

4912 Main St.
Vancouver, Washington

DEAR SIRS: This is to let you know that I have received the copies of the *Minimum Standard for Pharmacies in Hospitals* which you sent. I sincerely appreciate your prompt compliance with my request.

IRENE B. MCCLAIN, *Assistant Professor*

School of Pharmacy
The Florida Agricultural and Mechanical University
Tallahassee, Florida

Appreciation

DEAR SIRS: I would like to thank you and the ASHP for your efforts in securing a position for me. Through your efforts, I was able to obtain a part-time position in Saint Luke's Hospital Pharmacy in New York, N.Y. I once again wish to thank you and your staff for the assistance given me.

GARY MATOREN, *Pharmacist*

Saint Luke's Hospital
New York, N. Y.

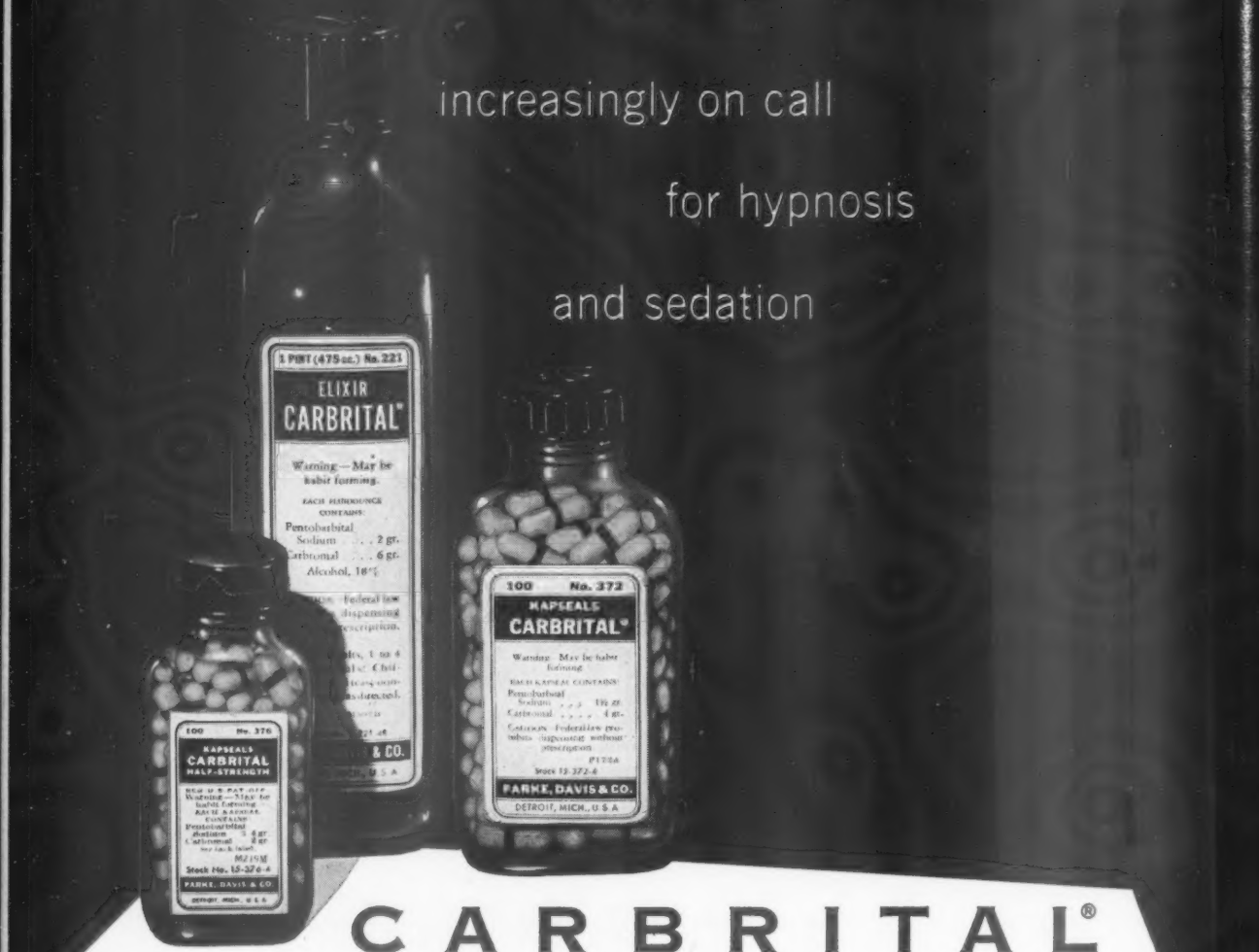
DEAR SIRS: I am returning herewith six hospital formularies which you were kind enough to send us several week ago. Dr. Cloyd has had an opportunity to look them over now and in the near future we plan to start active work on our own drug list. The books were very helpful, especially in setting up a pharmacological outline.

When we do produce a Formulary and I think it is at all characteristic of a Tuberculosis Hospital, I would be glad to send one for your library so that others may share in this lending plan.

Again, I would like to thank you for the very fine cooperation which has been received from our association.

ZENNIE M. STAUFFER, *Pharmacist*

State of Oregon
Tuberculosis Hospital
Salem, Oregon



CARBRITAL®

In the hospital, CARBRITAL continues to demonstrate its particular advantages in combating the ever-present problem of insomnia. It provides two stage hypnotic-sedative effect of short-acting pentobarbital sodium and milder, longer-lasting carbromal. Restless patients are helped to fall asleep promptly and to stay asleep throughout the night, without likelihood of morning "hangover."

CARBRITAL is well adapted to preoperative and to postoperative uses, and is especially valuable in obstetrical care and during blood transfusions, special examinations, and other procedures, in which its hypnotic-sedative action helps to minimize initial pain and to allay subsequent discomfort.

packaging: CARBRITAL Kapseals®—pentobarbital sodium, 1½ gr., and carbromal, 4 gr. In bottles of 100 and 1,000. CARBRITAL Kapseals (Half-Strength)—pentobarbital sodium, ¾ gr., and carbromal, 2 gr. In bottles of 100 and 1,000. CARBRITAL Elixir—pentobarbital sodium, 2 gr. per fluidounce (¼ gr. per teaspoonful), carbromal, 6 gr. per fluidounce (¾ gr. per teaspoonful). In 16-ounce bottles.

dosage: Adults: 1 or more Kapseals as required; or 1 to 4 teaspoonfuls of the Elixir as required. *Children:* ½ to 1 teaspoonful according to age and condition.

PARKE, DAVIS & COMPANY • DETROIT, MICHIGAN

EDITORIAL

The Doctor of Pharmacy Degree For Hospital Pharmacists

by Don E. Francke

The time has come to reevaluate educational programs available for career hospital pharmacists. Is the present Master of Science degree program the desirable one, or is it obsolete? Does it provide the educational background required for hospital practice, or does it fall short of this goal? Some of the Master of Science degrees offered are research degrees while others are essentially professional degrees. Is this pattern desirable? Does the Master of Science as a professional degree have the significance it should, or is it little better than the Bachelor of Science degree? Should a research degree be sought by those interested primarily in hospital practice, or should training for research be superimposed upon more adequate professional education, according to need? Is it not time that a more meaningful professional degree be made more widely available to hospital pharmacists and other practitioners of pharmacy?

There are strong indications that the professional degree of Doctor of Pharmacy awarded for the completion of a six-year program would better fill the needs of career hospital pharmacists than does the present Master of Science degree program. The Doctor of Pharmacy (Pharm. D.) degree should be clearly differentiated from the Doctor of Philosophy (Ph.D.) degree. The former is a professional degree, analogous to a Doctor of Medicine (M.D.) or Doctor of Dental Surgery (D.D.S.), which is awarded after the completion of a program of education for professional practice. In contrast, the Ph.D. degree is a higher degree taken at the graduate level; its distinguishing characteristic is that it prepares the recipient for research.

The Doctor of Pharmacy degree offers several advantages to those in hospital practice, advantages which are inherent in neither the Bachelor of Science nor the Master of Science degrees. First, the degree itself has a level of professional standing which is commensurate with the professional degrees of medicine and dentistry. This is important in hospital pharmacy practice, carried on as it is in an environment where recognized professional doctorate degrees are essential for influence and prestige. This need has been well expressed in the *General Report of the Pharmaceutical Survey,* (page 103):

"The bachelor's degree does not, however, confer the status that is desired by pharmacists, particularly those who work in rather intimate professional association with physicians, dentists, and members of other health professions who hold professional doctor's degrees."

Perhaps the greatest benefits a six-year program leading to a Doctor of Pharmacy degree offers hospital pharmacists are those which result from a well-planned sequence of courses. For example, after the student has had two years of basic college work he is ready to undertake an intensive four years of professional education. These years can provide in proper sequence courses in anatomy, physiology, biochemistry, bacteriology, pathology, pharmacology, and public health—in addition to the courses in pharmacy, pharmaceutical chemistry, pharmaceutical administration, etc. Moreover, the six-year program can provide for 10 to 15 hours of electives in the senior year. The student preparing for a career in hospital pharmacy may select such courses as hospital pharmacy administration, parenteral products, product development, additional courses in administration, manufacturing, public health, etc. Such a six-year program permits adequate training in the biological sciences as well as the physical sciences. The greatest weakness in the professional training of pharmacists today—those who work intimately with physicians—is their lack of adequate preparation in the biological sciences, particularly pharmacology, its prerequisites and cognate courses.

It is generally recognized that the Master of Pharmacy degree does not adequately train an individual for research, and when adapted as a professional degree for pharmacy practice it can only make up some of the deficiencies inherent in the four or five-year program.

The need for a more significant professional degree for hospital pharmacists becomes increasingly urgent as more and more colleges adopt the five-year program, which becomes mandatory for all colleges of pharmacy in 1960. If the present program of education for career hospital pharmacists is maintained at the master's level, the number of years involved in education and training will be seven (5 years of undergraduate work, 1 year of graduate work, and 1 year of internship). If the six-year program becomes more widely available the time involved will still remain the same, seven years (6 year program plus 1 year internship). However, the latter program would have the advantages not only of terminating in a more meaningful professional degree, but would also more adequately prepare the individual for professional practice in hospitals.

At present only two schools offer a Doctor of Pharmacy degree. These are the University of Southern California and the University of California. The professional degree of Doctor of Pharmacy should be available from all colleges which offer educational programs for those who wish to specialize in hospital pharmacy.

ETHICAL STANDARDS

PROFESSIONAL CONDUCT AND RESPONSIBILITIES

of the hospital pharmacist

by GEORGE F. ARCHAMBAULT

PROFESSIONAL CONDUCT is a term we hear repeatedly. What does it mean? Why is it important to us as professional practitioners? What is a profession?

After much reading and contemplation among the writings of ancient and modern philosophers and thinkers on this subject, I conclude that a profession is an occupation of man dedicated in some way to his physical, his mental, or his moral welfare. A profession is generally recognized and respected for several distinguishing characteristic qualities. For example, each profession has an organized body of knowledge and prescribed formalities for using it and for imparting its essential data to those who wish to join. A profession has a literature of its own, both in ever growing basic and refined text, and in dynamically current approved journals published regularly. Each profession demands desirable background prerequisites, and cultural and educational achievement. These must be satisfied for admission, and maintained for as long as the individual remains a member. Each profession has its governing or regulatory body composed of its own members, which provides the leadership and the means of participating with other professions in discharging its over-all responsibilities of service, being ever vigilant that the obligations toward progress and the technical and scientific advances that time brings become part of its total effort. And finally, individuals seeking the services of a professional person are not in a position to judge the quality of the service given. Rather, they must rely on the reputation of the individual practitioner and the standards of conduct maintained by the profession as a whole. As we say in law—the principle of "caveat vendor"—"Let the seller beware" applies, not "caveat emptor."

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We hospital pharmacists belong to a true, noble, and blessed profession. For we practice in a setting devoted exclusively to the care of the seriously ill and injured. We represent that speciality of pharmacy that concerns itself with the evaluation, the selection, the control, and the utilization of drugs in hospitals. This encompasses the supplying of medications for inpatient and outpatient use, the preparation of sterile medications, volume compounding, prepackaging, drug formulation, and research. Hospital pharmacy, we know, serves as the focal point in the dissemination of drug therapy information to the hospital staff.

The Constitution of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, Article 1, Section 2, reads:

> The objectives of the SOCIETY shall be (a) to provide the benefits and protection of a hospital pharmacist to the institution which he serves, to the members of the allied health professions with whom he is associated, and to the profession of pharmacy; which they will receive through the skill and art of qualified hospital pharmacists; (b) to improve the qualifications and usefulness of hospital pharmacists through high standards of professional ethics, education and attainments; (c) to assist in providing for a future adequate supply of such qualified hospital pharmacists; (d) to promote research in hospital pharmacy practices and in pharmaceutical problems in general; and (e) to increase the dissemination of pharmaceutical knowledge by providing for interchange of information.

Dr. Hugh Muldoon so ably said in "The Strengths of Pharmacy," his inspirational Remington Medalist address of 1953, "Specialists in hospital pharmacy form another group in which we (pharmacy) take great pride. These men and women practice their profession in its purest form since in their service the profit motive does not enter."

Applying the definitions and tests for professions as written by man since time immemorial, one arrives at this one unmistakable conclusion—hospital pharmacy is truly a profession. But nowhere in the various fields of pharmacy, be it manufacturing, community practice, pedagogy, journalism, or name what you will, is there to be

found a truer form of professional pharmacy than exists in our specialty of hospital pharmacy.

Ethics

The word "ethics" is derived from the Greek *ethos* which no doubt meant the same as its Latin equivalent *mores* did to the Romans—"character and approved group habits or customs." Webster defines ethics as "the science of moral duty; broadly, the science of ideal human character." Poland defines ethics as "the science of the role of right and wrong"; Hill says ethics is "the science of putting order in man's free acts"; and Horne, another authority, states "ethics is the science of human conduct. It is not primarily a descriptive science telling us how men do behave, but a normative science telling us how men should behave."

Ethics relates to all manner of deeds and habits which concern men; either as private individuals or as members of the social whole. Ethics is that science that points out definite standards and ideals of life in accordance with the natural law. It helps one to answer that most important question "What ought I to do?"

One studies ethics primarily to understand oneself in relationship to duty. Duty is what one may not violate though he can, that moral obligation from which just men can never retreat.

Concerning professional ethics, Richardson in his text, "*The Ethics of a Profession,* states, "after all the arguments and disputations, after all the theory and doctrine, after all the study and analysis, the conclusion of the whole matter is this, that a professional man does not live unto himself alone and what he does carries an influence far and wide. Every unworthy deed is a power for evil. Every good deed helps the world."

In short, then, professional ethics and conduct means simply adherence to ideals, to customs, to habits, and to traditions of service to mankind which the members of a profession build up through the years. To be "unethical" is to violate these accepted "mores" of the group. Professional ethics and conduct is the morality of the profession, the "right way" of practicing the profession. Customs or "conduct codes" are not set by outsiders but by the groups themselves, and the conduct of the individual members of a profession is approved, frowned upon, or tolerated, depending upon how ethically strong is the profession itself.

Codes of Ethics

This leads us directly into the professional codes, the codes of ethics or codes of conduct of the individual professions, one of the major identifying characteristics of a profession. These, when properly enforced, unquestionably play a large part in determining the moral fiber and strength of a particular profession and its members.

Mayer and Ross in *Ethics and the Modern World* inform us that the main goals of the professional codes are:

(1) To insure high qualifications of those who are admitted to the profession.

(2) To stress the service motive, professions thus are guided by the ideal of contributing in an unselfish manner to the public good.

(3) To develop a spirit of exclusiveness.

(4) To protect the public. Unethical behavior is taboo. Codes guide the policy and conduct of those in the profession who need this positive professional sanction in moments of temptation.

(5) To prevent governmental regulation of the profession. Most professions believe in the spirit of laissez-faire; they hold that government interference destroys initiative. If the profession tolerates abuse, then the defenders of the people may need to move in.

(6) To regulate the relationship between the members of the profession. For example, the Code for Educators determines the respective responsibility of teacher and administrator. Through its Code, the American Medical Association attempts to prevent unethical practices between competing physicians.

Let us for a minute or two cull sections of the codes of some of the health professions that are of particular interest to hospital pharmacists.

(1) *The Principles of Medical Ethics of the American Medical Association,* adopted in 1848 and as revised December 1953. This code consists, as you know, of four sections: (A) The responsibilities of the physician to the profession; (B) The relationship of the physician to the patient; (C) The duties of the physician to his colleagues; and (D) The duties and responsibilities of the physician to the medical profession and to the general public. Section 3 of this code states:

Pharmacists. Physicians should recognize and promote the practice of pharmacy as a profession and should recognize the cooperation of the pharmacist in the education of the public concerning the practice of ethical and scientific medicine.

(2) *Code of Hospital Ethics,* adopted 1941, and endorsed by the American Hospital Association and the American College of Hospital Administrators.

Item 16. Professional Codes of Ethics. It is the duty of the hospital insofar as the hospital personnel and regulations can render assistance, to aid and support the members of all professional groups in their obser-

vance of the code of ethics of their respective organizations.

Item 25. The Relationships of the Administrator to Vendors. The administrator should bear in mind constantly that, in his relationships with the representatives of the supply houses or commercial organizations, his hospital is almost inevitably concerned. Therefore, his relationships should be courteous at all times and of such nature that under no circumstances will the hospital be involved or obligated in any way. Particularly important is it that the administrator refrain from becoming under personal obligation to a firm or its representative as would be the case by the acceptance of personal gifts or unusual social favors. Personal commissions or rebates should never be accepted. The administrator should not give a testimonial for public use and should not authorize or otherwise permit the public use of his name or photograph in the endorsement of commercial services, equipment, materials, drugs, or other supplies.

Gifts or donations should not be solicited from business houses on the basis of making a return for business granted. Unless required by law to do so, the administrator or his staff should not disclose the price to a competitor of a firm submitting prices. Orders placed in good faith should not be cancelled or the goods returned without legitimate reason.

Requests for special extensions of credit should be definitely arranged before any merchandise is ordered.

How fitting and how proper might this section also be for one of the sections of a special code of ethics for hospital pharmacists.

Let us reflect here on pharmacy's own Code of Ethics, as developed by the American Pharmaceutical Association in 1852, and as revised in 1922. Much of this Code applies equally to the hospital practitioner of pharmacy as it does to the community practitioner. Consider if you will, however, the desirability or need for a special code for hospital pharmacists. There is much that needs to be stated, much that is missing in our over-all pharmacy Code, much that is vital to good hospital pharmacy practice and which should be stated officially. For the convenience of those of you who wish to study this matter in detail, I refer you to the complete Code of Ethics. (see page 449) Suffice for us now to note the preamble of the Code and its areas of coverage. The preamble states:

The primary obligation of Pharmacy is the service it can render in safeguarding the preparation, compounding and dispensing of drugs and medical supplies. The practice of pharmacy requires knowledge, skill, *and integrity;* therefore, the State laws restrict the practice of pharmacy to persons with special training and qualifications, and license to them privileges which are denied to others. Accordingly, the pharmacist recognizes his responsibility to the State and to the community for their well being, and fulfills his professional obligations honorably.

The Code of Ethics for pharmacy then goes on to cover:

(1) The pharmacist and his relations to the public,

(2) The pharmacist and his relations to the other health professions, and

(3) The pharmacist and his relations to fellow pharmacists.

Code for Hospital Pharmacists

Now, what of the professional ethics and code of conduct of individual hospital pharmacists? What are the *mores* or standards for hospital pharmacists? Do we have stated positions for "conflicts of interest" situations? Hospital pharmacy in the United States dates back to 1752; to Jonathan Roberts, the first hospital pharmacist in colonial America, who practiced at the Pennsylvania Hospital in Philadelphia, a hospital founded by Benjamin Franklin. Unfortunately, for our specialty, it was not until 1920, when the American College of Surgeons began its hospital standardization program, that hospital pharmacy began to emerge and grow as a professional specialty. In 1956, 36 years later, with over a third of a century of experience behind us, it is time for the leaders of hospital pharmacy to give serious thought to this subject of Ethics and to a professional Code of Conduct designed particularly for us, the members of this professional specialty.

Professional codes, we know, are inspirational. They are aids to the young in a profession. Codes afford inspiration to the oldsters of a profession, like myself. They help to maintain a high moral tone of those in active practice.

An appropriate code for us would spell out the principles underlying our duties, our responsibilities, and our rights as individual hospital pharmacists. These principles of conduct would be considered as they concern our relationships with our trustees, our administrator, our medical and dental staffs, our pharmacy committee, the rank and file personnel, visitors, the hospital itself, the general public, and the community. They would delineate our relationships with other pharmacists, both the hospital and community practitioners, with our co-workers in nursing and in the paramedical disciplines such as the medical record librarian, the social worker, the dietitian, and others of the hospital family. They would crystallize our obligations to the young of hospital pharmacy, to the pharmacy student, to the drug research firms of the country, and to the medical service representatives and other vendors. And, finally, but not of least importance, these principles would include statements of our proper rights as members of a profession. Shouldn't we take a stand now, for example, as to what is and what is not substitution

in hospital pharmacy practice? Isn't this an important ethical matter?

If you, the leaders of hospital pharmacy, will pause and reflect on the desirability of an enforceable code of ethics for our specialty, a code that expresses the social conscience of our group, that expresses the convictions shared in common by us all, I would feel indeed as though another valuable contribution to our profession is in the making through this Harvey A. K. Whitney Lecture.

Dr. Mason Gross, Provost of Rutgers University, in his address to the Fourth Annual Rutgers Pharmaceutical Conference, placed particular stress on self-policing as a prime responsibility of a profession, Dr. Gross stated:

> A profession is a profession . . . when it is self-regulating in the sense that it has a code of ethics which determines for its practitioners their social obligations and their moral responsibilities, and . . . when it does not turn over to others to determine what its moral obligations are, but assumes full responsibility for discovering and for enforcing these obligations itself.

Louis Kazin of *Drug Topics* in his column, "Your Pharmacy and Mine," recently chided the pharmacy profession with his editorial, "It Is High Time to Police Ourselves." Kazin pleads with pharmacy to establish an impersonal, objective approach for handling violations of its over-all code by the application of suitable sanctions at State levels. I plead likewise for hospital pharmacy to develop and adopt a well thought out, enforceable code.

I am proud to say that up to now there has been no national adverse publicity directed at hospital pharmacists. Hospital pharmacy, we know, hopes to keep things this way. But suppose we should become faced with some of the problems of the community practitioners of pharmacy, where because of a few, many are suspect, would it not be life-saving for us to have our disciplinary mechanism, our code of conduct, in order? Tsanoff, in his text *Ethics* (1955) speaks of this prostituting of pharmacy from its offending side as follows:

> In considering ethical practice in medicine our attention naturally turns to the standards and principles in the manufacture and distribution of medicines and drugs. We may appreciate the conflict of commercial and professional motives in a trained pharmacist with some medical ideals who is also a plain trader in drugs and patent medicines. The public danger in the sale of impure and deleterious drugs promoted by nation-wide advertising has roused social reformers within and outside the profession to check this evil by more stringent legislation. The stubborn resistance to this reform shows how strongly entrenched corrupt business is in this auxiliary branch of Medical Service in our Society.

And note, this was written not in 1852, but in 1955.

As a boy, I was taught by my good Vermont Dad—"There is not so much good in the best of us, nor so much bad in the worst of us, that it behooves any of us to speak ill of the rest of us." I am sure all of us have been taught not to be "busybodies." However, the nonenforcement of a code makes of that code a mere pleasantry at best and possibly a hypocrisy of that profession. Individuals of a profession who bring it into disrepute must be subjected to professional discipline, and the respectable members of the profession must accept this responsibility. Taeusch states, in his text, *Professional and Business Ethics*:

> This is a professional obligation, an unpleasant, distastful but nevertheless essential part of a profession. It consists of the courage to purge the profession by eliminating from it the unfit members . . . Every professional man is in a real sense his brother's keeper to the extent of being an example of the right mode of conduct and thereby indirectly admonishing his less conscientious fellow member. Every professional organization is further the keeper of its members by being obligated to exclude from its membership such as those that fail to keep the faith.

Pharmacy's Code is fairly definite in its statement concerning the proper conduct of pharmacists—"The pharmacist will expose any corrupt or dishonest conduct of any member of his profession which comes to his certain knowledge, through these accredited processes provided by the Civil laws or the rules and regulations of pharmaceutical organizations, and he will aid in driving the unworthy out of the calling." But note, the actual action of discipline remains, where it should be, in the local or state atmosphere.

The fear of washing "dirty linen in public" by the respectable member gives courage to the less properly motivated in any profession. Witness the courage of the American Bar Association when, last January, it made public a proposed new code for disciplining its unethical lawyers. The proposal, to operate at State levels, sets forth these sanctions:

1. Permanent disbarment,
2. Indefinite suspension from practice,
3. Public censure, and
4. Private censure.

The commission, by a lawyer, of any act contrary to honesty, justice or good morals, whether the act is committed in the course of his relations as an attorney or otherwise, and whether or not the act is a felony or misdemeanor, constitutes a cause for discipline, the code states.

Specific Areas of Need

So I repeat, what of the professional ethics and code of conduct of the individual hospital pharmacist? What is he teaching, by example or otherwise, to those following in his footsteps in this,

CODE OF ETHICS

of the American Pharmaceutical Association

(REVISED AUGUST, 1952)

The primary obligation of pharmacy is the service it can render to the public in safeguarding the preparation, compounding, and dispensing of drugs and the storage and handling of drugs and medical supplies.

The practice of pharmacy requires knowledge, skill and integrity; therefore, the State laws restrict the practice of pharmacy to persons with special training and qualifications, and license to them privileges which are denied to others. Accordingly, the pharmacist recognizes his responsibility to the State and to the community for their well-being, and fulfills his professional obligations honorably.

the pharmacist and his relations to the public

The pharmacist upholds the approved legal standards of the United States Pharmacopeia and the National Formulary, and encourages the use of official drugs and preparations. He purchases compounds, and dispenses only drugs of good quality.

The pharmacist uses every precaution to safeguard the public when dispensing any drugs or preparations. Being legally entrusted with the dispensing and sale of these products, he assumes this responsibility by upholding and conforming to the laws and regulations governing the distribution of these substances.

The pharmacist seeks to enlist and to merit the confidence of his patrons. He zealously guards this confidence. He considers the knowledge and confidence which he gains of the ailments of his patrons as entrusted to his honor, and does not divulge such facts.

The pharmacist holds the health and safety of his patrons to be of first consideration; he makes no attempt to prescribe for or to treat disease or to offer for sale any drug or medical device merely for profit.

The pharmacist keeps his pharmacy clean, neat, and sanitary, and well equipped with accurate measuring and weighing devices and other apparatus suitable for the proper performance of his professional duties.

The pharmacist is a good citizen and upholds and defends the laws of the states and nation; he keeps informed concerning pharmacy and drug laws and other laws pertaining to health and sanitation, and cooperates with the enforcement authorities.

The pharmacist supports constructive efforts in behalf of the public health and welfare. He seeks representation on public health committees and projects and offers to them his full cooperation.

The pharmacist at all times seeks only fair and honest remuneration for his services.

the pharmacist and his relations to the other health professions

The pharmacist willingly makes available his expert knowledge of drugs to the other health professions.

The pharmacist refuses to prescribe or to diagnose; he refers those needing such service to a properly licensed practitioner. In an emergency and pending the arrival of a qualified practitioner, he applies such first-aid treatment as is dictated by humanitarian impulses, scientific knowledge and good judgment.

The pharmacist compounds and dispenses prescriptions carefully and accurately, using correct pharmaceutical skill and procedure. If there is any question in the pharmacist's mind regarding the ingredients of a prescription, a possible error, or the safety of the direction, he privately and tactfully consults the practitioner before making any changes. He exercises his best professional judgment and follows, under the laws and existing regulations, the prescriber's directions in the matter of refilling prescriptions, copying the formula upon the label or giving a copy of the prescription to the patient. He adds any extra directions or caution or poison labels only with proper regard for the wishes of the prescriber, and the safety of the patient.

The pharmacist does not discuss the therapeutic effects or composition of a prescription with a patient. When such questions are asked, he suggests that the qualified practitioner is the proper person with whom such matters should be discussed.

The pharmacist considers it inimical to public welfare to have any clandestine arrangement with any practitioner of the health sciences by which fees are divided or in which secret or coded prescriptions are involved.

the pharmacist and his relations to fellow pharmacists

The pharmacist strives to perfect and enlarge his professional knowledge. He contributes his share toward the scientific progress of his profession and encourages and participates in research, investigation, and study. He keeps himself informed regarding professional matters by reading current pharmaceutical, scientific, and medical literature, attending seminars and other means.

The pharmacist seeks to attract to his profession youth of good character and intellectual capacity and aids in their instruction.

The pharmacist associates himself with organizations having for their objective the betterment of the pharmaceutical profession and contributes his share of time, energy, and funds to carry on the work of these organizations.

The pharmacist keeps his reputation in public esteem by continuously giving the kind of professional service that earns its own reward. He does not engage in any activity or transaction that will bring discredit or criticism to himself or to his profession.

The pharmacist will expose any corrupt or dishonest conduct of any member of his profession which comes to his certain knowledge, through those accredited processes provided by the civil laws or the rules and regulations of pharmaceutical organizations, and he will aid in driving the unworthy out of the calling.

The pharmacist does not lend his support or his name to the promotion of objectionable or unworthy products.

The pharmacist courteously aids a fellow pharmacist who may request advice or professional information or who, in an emergency, may need supplies.

The pharmacist will not imitate the labels of his competitors or attempt to take any unfair advantage of their professional or commercial success. He does not fill orders that he knows are intended for a competitor. He deals fairly with manufacturers and wholesalers and recognizes the significance and legal aspects of brand names and trademarked products. He adheres to fair business practices, meets his obligations promptly, and fulfills his agreements and contracts.

The pharmacist is proud to display in his establishment his own name and the names of other pharmacists employed by him.

the most professional of all pharmacy pursuits? What are some of the specific problems that might tempt the not so ethical hospital pharmacist? Does he sanction the non-prescription sale, or giving away, by lax controls or otherwise, of barbiturates, amphetamine, and other even more dangerous, more habit forming drugs? Does he treat subordinates in his department as he would wish to be treated, that is, with a firm, definite, fair policy? Or is he indecisive or wavering in his decisions, constantly changing the rules to fit the "last in" objector; or worse still, is he reluctant to make decisions? Is he mindful of his overall professional responsibilities, keeping an eye on the leadership and the possible future leadership of the local chapter and the national SOCIETY? Is he alert to prevent what Dr. Jack Masur, Assistant Surgeon General of the U. S. Public Health Service, refers to as "the fostering of a gerontocratic elite of ancient and outdated leaders bent on retarding progress to preserve their own tenure" or leaders who are trapped by timidity, or ultraconservatism?

Does he approve, by conformance or by nonobjection, unethical actions in hospital administration, actions unknown to the clinicians whereby drug economies are effected at the expense of the patient; possibly actions that encourage the purchase of substandard, subquality, or unknown brands of drugs? Does he, jointly with his administrator or purchasing agent, or by himself, enter into non-ethical relationships with his vendors? Does he, in collusion with his administrator or unknown to his administrator, allow nonprofessional individuals (pharmacy helpers) to engage in duties that state law demands be performed by licensed pharmacists only. I refer in particular to certain acts of compounding and dispensing and the filling of nursing station medication containers where no immediate direct pharmacist supervision is exercised.

And again, does he, in hospital charity cases, engage or condone in the cutting of prescribed prescription quantities without the consent of the physician? Isn't this a serious ethical matter? And again, how does he handle mistakes in dispensing or compounding? They do occur, we know, for pharmacists are but human. Does he seek to place the blame on the nurse, the patient, the physician, the manufacturer, or does he obtain and promptly report the facts? Does he act quickly to prevent further possible damage, or loss of life? Does he evaluate honestly the error and determine where the fault lies? Does he attempt to set up corrective measures to prevent a recurrence of the error? Ethics and morals are involved. What do his subordinates think of him as they watch him handle these situations? Are they proud of him, and of us? Or do they have names for us that we would rather not hear because we do not discipline the man? Does he follow the "Good Book", the Ten Commandments, and the Golden Rule, in protecting not only the property of the hospital but also its good name? And what of the good name of those on the hospital team and the good name of the patient? Does he have a proper attitude toward his responsibilities and duties of professional secrecy concerning diagnosis, prognosis, and medical records? Is he loyal to his institution?

As a group and as individuals, are we recognizing our responsibilities in connection with the geriatric problem of the nation? (There are over 18 million individuals now over 60 in this country and 5.3 million are said to have a chronic disease in our national population of 164,764,230.) Meeting the pharmaceutical needs of the aged, the disabled, and the chronically ill, will require special types of hospital, outpatient, and home care pharmaceutical services. Also, the projection of better pharmaceutical service into the nursing homes and other long-range illness domicilaries is imminent. Will we be found lacking professionally because of a want of preparedness, a lack of a plan in this area? Already, criticism has been aimed at the medical profession for their alleged negligence in moving into the preventative aspect of medicine. Robert MacIver, in his treatise "The Social Significance of Professional Ethics," states:

> . . . the medical profession has incurred to many minds a serious liability, in spite of the devotion of its service to actual patients, by its failure for so long to apply the preventative side of medicine, in particular to suggest ways and means for the prevention of the needless loss of life and health and happiness caused by the general medical ignorance and helplessness of the poor.

Let it not be said that hospital pharmacy failed in its responsibilities toward the geriatric problems of the nation. How about the small hospital that is unable to support a pharmacist? Are we seeking means of providing adequate pharmaceutical service for patients in these hospitals?

Daily Obligations

Let us look again at the daily action of the hospital pharmacist. Is he teaching our young that our profession is a live, a dynamic, an ever-changing one; that hospital pharmacists are in conscience morally obliged and committed to continuous study, to reviewing their professional texts and to studying current professional literature; that hospital pharmacists must never cease to seek the latest knowledge in drug therapy? Isn't this one of the more important duties and responsibilities of the drug therapy consultant of the hospital

—the hospital pharmacist—a duty from which he cannot, he dare not shirk, and still hope to maintain a clear professional conscience? Pharmacy's Code speaks to this point for all pharmacists when it states "the pharmacist strives to perfect and enlarge his professional knowledge . . . he keeps himself informed regarding professional matters by reading current pharmaceutical, scientific and medical literature, attending seminars and other means."

Let our code, if we decide to have one, remind us that like the physician, the dentist, and the nurse, the work of the hospital pharmacist is of such a nature that he is obligated in conscience to require and maintain sufficient knowledge and skill to discharge these professional and moral functions. Important functions? The people of this country believe so, for before one is allowed to serve in our sphere of pharmacy, or that of the community practitioner, he must devote years in formal study (four now, and soon five) and then be examined by peers, appointed by State officials, to insure that he is capable of executing properly this public trust.

We hospital pharmacists, unlike our esteemed colleagues of the pharmaceutical profession who practice as private individuals as the community practitioners of pharmacy, serve in institutions as public employees. As such we are subject to supervision and direction which normally constitute restraints on unethical conduct not present in the case of the community practitioner of pharmacy. Like the hospital employed physician, dentist, and nurse, the hospital pharmacist recognizes that administration may state "where" and "when" to practice but never "how" to practice. This is an important concept that must not be lost sight of. In the final analysis, this "how" is the practice of pharmacy for which the State has licensed the individual, not the hospital, not the administrator, not the Board of Trustees. The hospital pharmacist stands alone before his peers, be it a Practice or Grievance or Ethical Standards Committee or a State Board of Pharmacy, for any unethical acts or questionable professional practices, regardless by whom suggested or ordered. Let us not misunderstand this position and responsibility. An employer (the hospital) has the right to control the activities of the staff member (hospital pharmacist). However, the hospital pharmacist is responsible professionally, morally, and legally for his own acts. Besides following the administrative directions of the hospital, and professional instructions of physicians, hospital pharmacists have the additional moral responsibility, one binding in conscience, of cooperating with all who are concerned with the welfare of the patient; the dietitian, the nurse, the medical record librarian, the social worker, the technicians, and others on the hospital team.

Earlier, I mentioned the rights of professional men and women. Let us explore this area. Do we by our acts and deeds indicate that the hospital pharmacist is "worthy of his hire"? "Probably as much harm is done to professional life and society", says Taeusch, "by the failure to access sufficiently high fees and secure a large enough income [to us—salaries] to provide the necessities of professional dignity as has been done by overcharging." Are we hospital pharmacists, as a group and as individuals, too servile to demand proper financial recognition? Isn't this a moral obligation of hospital pharmacists? It has been said that "any professional man who fails to take all pertinent economic items into account in his charges and fees is a menace to his profession, and conceivably to the economic order."

Conduct of Organizational Leaders

What of the ethics and code of conduct that is to be expected of a national professional society, the local branches, and our leaders? Much that I have already cited concerning the ethics of the individual hospital pharmacist is applicable here. There are no real distinguishing features in many areas between the responsibilities, the duties, and the rights of the individual and those of his Society. The cardinal virtues of prudence, justice, honesty, fortitude, and temperance apply to group action as well as to individual action.

Our national leaders, for they are the voice of the Society, and the leaders of our local chapters act, we know, with the prime object of the Society's *existence* in mind. This objective is the promotion of better care for the patient through better utilization of our talents. If this be not true, then our Constitution and By-Laws and our actions here this week would be but fraudulent statements and acts, and we, hypocrites. We must not, we cannot, be a group interested primarily in what we can obtain for hospital pharmacists. We must, to be a true profession, be a group interested in that which is morally right and ethically good for pharmaceutical service in hospitals. We must not be interested in that which is politically expedient, selfishly beneficial to our membership, or personally advantageous.

A great part of the stability of any professional group is due to the spirit of sacrifice, earnestness, and loyalty—in a word, the motivation which characterizes its members. It has been my privilege these past ten and more years, to know intimately the leaders of hospital pharmacy in this country, its oldsters, its middle agers, and its youngsters. Hospital pharmacy has nothing to fear,

considering the wealth of leadership among us, from dreaded professional stagnation or the fostering of the "gerontocratic elite." Our leaders are forced to and wish to move up, to serve, and to move on to function in an advisory capacity, making way for the arriving generation of leaders. This is as it should and must be. When the day arrives that the young and the middle aged leaders do not cast a critical, auditing eye on the oldsters; when they do not review and weigh that which is being done by the national SOCIETY, its publication, and the local branches—then on that day, hospital pharmacy has lost an important self-examining element, and may well pay the fearful price—the lessening and then the loss of professional status.

Society's Responsibilities

Of other specific SOCIETY responsibilities, may I point out that a moral responsibility rests upon ASHP leaders and those in local chapters to carefully guard the conditions of membership into the group, as well as the general requirements for good standing, and to see to it that these standards are adhered to. Further, it is their duty and ours to develop proper cooperative relationships between other professional hospital groups such as the American Hospital Association, the Catholic Hospital Association, the Joint Commission on the Accreditation of Hospitals, and the American College of Hospital Administrators, as well as to continue to foster the development of an exacting professional consciousness among our membership. Our SOCIETY already reveals itself as one standing for a high concept of professional ethics. It must also indicate its awareness of any existing malpractices and take action for the correction of these conditions. In my opinion, the SOCIETY should even now be turning toward the development of an adequate, self-disciplining program as a means of enforcing, at local and State levels, the as yet unwritten but known standards of conduct of hospital pharmacists. The recently announced self-disciplining point rating plan of the Bergen County Pharmaceutical Association of New Jersey might well be the ideal starting point for such a study.

I repeat, unless we assert the necessary modicum of self-government, we cannot claim to be a profession. Our national SOCIETY and our local branches must be vigilant to ferret out and curb unethical practices in hospital pharmacy. The status of any profession is never static. "Nothing is permanent except change", and so it is with a profession. It has its ups and downs, as its members swing from the spiritual to the materialistic and back. Adherence to principles cannot be taken for granted; there will always be those few who are willing to sacrifice principles for self-gain and self-prestige. This occurs most often when the leadership fails to truly lead, or when its lacks the courage to punish those who seek to break from that which is right and proper. For a truly inspirational example of outstanding leadership in this area by a national society, I cite the November 1955 report of the American Medical Association's Judicial Council to its House of Delegates. Here is the American Medical Association's answer to a move to change the principles of American medicine to the extent that it would not be unethical for a physician to own a drug store or sell drugs and appliances. The Council spoke to its membersship by first quoting from its Code of Ethics: "The prime object of the medical profession is to render service to humanity; . . ." Then the Council asked, "Is this outmoded, empty phrasing, or is it our birthright?" Another part of the Code was then quoted: Reward or financial gain is a subordinate consideration." The Council again asked: "Is this poppycock or principle, a slogan or integral part of our real security? . . ." The Council then reiterated that, "Principles do not change; rules of conduct and laws may change, but principles do not." Proud indeed must be the true physicians of America as they see their Association take this stand.

Other Moral Obligations

What of some of the other moral responsibilities of our SOCIETY? Let me name but a few of the more important. You, the leaders of hospital pharmacy, know how well the SOCIETY, the Division, and the local groups are functioning in these areas, and whether any action is necessary or desirable.

I raise the question of fellowships in the SOCIETY, the placing of its stamp of approval on proven, capable hospital pharmacists in a manner similar to the Board specialties of the medical profession.

I raise the important issue of *enforceable* standards for internships and graduate programs, standards that will give us true internships and not programs that beg the name of internship by demanding a large number of hours of repetitious labor in bulk compounding or manufacturing of sterile and non-sterile preparations; routine tasks that have little teaching value in relationship to the number of hours invested. Instead, let us seek true standards; for real teaching programs, programs taught with the aid and cooperation of the medical staff and others of the hospital team. Programs that, in addition to the training given within the four walls of the hospital pharmacy, rotate the intern through the other departments of the hospital such as Internal Medicine, Derm-

atology, Surgery, Pathology, Radiology, and the various phases of hospital administration such as finance and personnel. Are we properly discharging this, one of the greatest of our moral responsibilities, through the present proposed standards, or is hospital pharmacy merely establishing standards to fit some of the intern programs now in existence? Is this to be our goal?

Internships and Educators

I raise the issues of sufficient intern programs for pharmacists interested in hospital careers, and the promotion of proper research activities for hospital pharmacy. Should we have guidance programs through special institutes for pharmaceutical educators, programs of a nature that will focus on what needs to be better taught and the proper perspective by educators toward intern programs and graduate hospital pharmacy programs?

Some of our educators, we know, have not yet thought to compare postgraduate hospital pharmacy intern training with medical, dental, dietetic and other hospital intern programs, wherein the experienced hospital team serves as preceptors for that needed experience sought by all young, inexperienced members of the health professions. If this group of educators is correct in their assumption that formal graduate programs are needed and necessary for hospital pharmacists and that the so-called "non-academic internship" is undesirable, then, we must ask, what is wrong with our undergraduate pharmacy courses? Are they sufficiently good to allow for the community practice of pharmacy and not good enough for hospital pharmacy practice? And again we must ask, is the internship plan as advocated for graduate physicians, dentists, dietitians, and others not proper for pharmacists? There are 11,048 medical internships in 850 teaching hospitals today, all approved by the American Medical Association; 319 dental interships in 137 hospitals, all approved by the American Dental Association; and 662 dietetic internships in 59 hospitals, all approved by the American Dietetic Association; and but 34 pharmacy internships.

We need more hospital pharmacy internships, we need the cooperation of the pharmaceutical educators in this regard. What finer way is there for the profession of pharmacy to advance with its five, and eventually its six year programs, than to move forward with hospital intern programs in many of the 850 teaching hospitals of the nation? These are programs designed to have the pharmacy intern rub shoulders with his medical, dental, dietetic, and other intern brothers and sisters; programs designed to have the young of pharmacy see patients ill in bed, on the operating table, in the recovery room; to witness drugs being prescribed and used, and to witness their dramatic action. What better way is there to conclude one's formal pharmacy education? This must be one of hospital pharmacy's long-range responsibilities. We must carry this message to Garcia, to the pharmaceutical educators not yet alerted to this teaching potential.

Lastly, in this area of SOCIETY responsibility, let us be reminded that some 200 bills directed toward health care are introduced at each session of Congress. We have an obligation to the public to create soon a legislative section in our SOCIETY that will study each bill introduced and its implication on our specialty and on patient care.

Hospital Pharmacist in Society

So, I ask: Where to now hospital pharmacists? Max Reinhardt once said, "Always act the part—and you can become whatever you wish to become." It is an accepted truism that each member of a profession represents that profession to his community.

In the final analysis, the value each of us as individuals places upon our profession will determine the place of the hospital pharmacist in American society. If we wear our professional cloak with pride and with dignity, if we behave professionally and realize the valuable and fundamental contribution our specialty has made, in the improvement of patient care since the "renaissance of the twenties", we will continue to establish in the minds of the American people our rightful place as one of the true health professions.

My only purpose in speaking tonight on this subject is to start us, all of us, thinking seriously in this area of our rights, our duties, and our responsibilities. I hope what I have said will stimulate ethical discussions back home at the local branch meetings, and that from the "grass roots" that has made hospital pharmacy the fine professional specialty that it is today, will come ideas and ideals in the form of better hospital pharmacy practices and resolutions to the House of Delegates of the ASHP. I ask, are we proud of the ethical practices of hospital pharmacy as they are? Can we make our *mores* better, and if so, how? How about our young, and the young in the years to come? Hospital pharmacy and hospital care await our answer. What you, and you, and I, as individuals and as a group, think and do about our specialty of hospital pharmacy; about our responsibilities, our duties and our rights, and an enforceable code of conduct, in the years ahead, will decide whether hospital pharmacy remains a profession or becomes a mere job of work, a combination of technician-tradesman.

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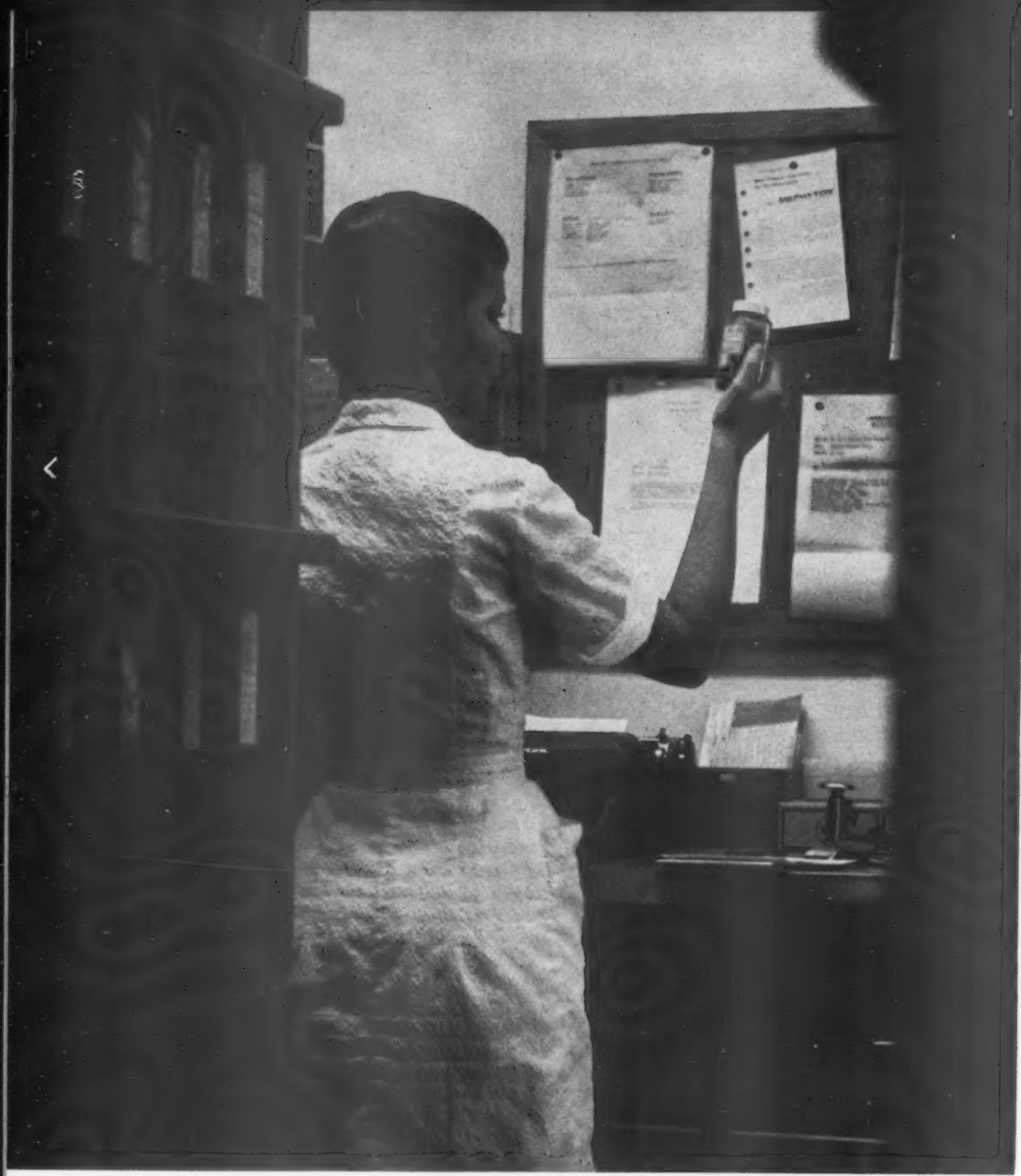

by JAMES W. MITCHENER

EVERY ITEM THAT LEAVES OUR PHARMACY represents our profession, of which we are justly proud, and it represents us as individual hospital pharmacists. Therefore, after giving our very best effort in filling drug orders in our hospitals, we should give careful and serious thought to both the label and the container so that the finished product will properly represent us. Preparation of the label carries many important responsibilities not specifically required by our administrators when we were employed to do our jobs. But we should assume these responsibilities as part of our jobs.

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Appearance

The primary function of a label is to convey information. At the same time, we should bear in mind that those who see the label may form

LABELING RESPONSIBILITIES

OF THE HOSPITAL PHARMACIST

an opinion of the person or company represented. As we look around the shelves of our own pharmacies, we see that the most appealing labels are those of the most reputable companies. At the same time, we may see a few bottles on our shelves of the less known companies, and for various reasons the labels on these do not have the appeal of the leading pharmaceutical firms. The former have obviously tried to cut the cost of the package, which causes us to wonder whether they have also tried to cut the cost of the contents at a sacrifice of quality. Appearance should be most important and we should never sacrifice quality in favor of economy in selecting and preparing our own labels. Successful companies identify themselves with a label of which they are proud and we should dispense only finished products which we are proud to have represent us.

When we fill drug orders to go to a nursing unit in a hospital, our responsibility is different from that of the retail pharmacist. Here we must identify the contents of the package. Let us consider a few of the common mistakes committed by the hospital pharmacist and then offer a few suggestions for improving the label.

Common Mistakes

One day a nurse reported to a physician that his patient was sleeping all day and was restless and awake most of the night. After a little investigation, they found that the pharmacist had made a mistake in labeling. The patient was receiving two chloral hydrate capsules three times a day before meals and two vitamin capsules at bedtime. To prevent such embarrassing errors, it should be a very strict rule for all hospital pharmacists that only one order should be filled at a time. This rule should be enforced especially during the early morning rush to fill the drug baskets. It is quite tempting to type several labels at once in order to save time when we have many orders to be filled. But when we are rushed, it is easy to get labels mixed up. The only way to avoid getting labels switched is to fill orders one at a time. Have one order or prescription completely finished before proceeding to another one.

Reading Labels Carefully

Another related mistake that occurs is the failure to read the label of a stock bottle properly before filling an order. One hospital reported the death of a child after he had received 15 mg. of codeine sulfate. Investigation revealed that the pharmacist, in haste, picked up the wrong bottle from his narcotic cabinet and filled the floor stock bottle with 15 mg. morphine sulfate hypodermic tablets.

In another accident, a thick, heavy, clear liquid was dispensed as mineral oil to a patient. But in the haste of filling the order, the pharmacist gave the patient the 50 percent solution of benzalkonium chloride. Such mistakes as these are not only embarrassing but they may destroy all of the confidence the medical staff has in the pharmacist, and they could destroy the confidence that the pharmacist has in himself. We have such a habit of becoming mechanical in our motions that, when we get rushed, it is so easy to make errors on items we consider the least important. Regardless of the rush, it is our responsibility to avoid such errors. We can do this by making a rule that all completed orders are to be checked by someone else before they leave our pharmacy. Check the label to see that it has the proper information, and check the contents to see that it was filled properly.

Teaching Opportunities

As drugs are labeled for distribution to the nursing unit, we have an excellent opportunity to continue our responsibility of teaching the nurses more about drugs. We should label the drug with the generic name, and if it is ordered by a trade name, this could be added in paren-

theses. Nurses and physicians seeing these names together will become familiar with the two and can learn to use generic terms. Any time that we can get our nurses and physicians to use generic terms, we are taking a big step toward the success of the Formulary System and the success of our teaching program in pharmacology. Also, the use of generic terms by the physician will greatly aid the retail pharmacist in the problem of duplication.

Strength

The name of the drug should be followed by its strength. Some physicians simply order "sulfadiazine tablets" with directions to give two tablets. Others may order the same drug with directions to give one gram per dose. If we are to continue fulfilling our responsibility as a source of information, then we should consistently include the strength of all single medications on the labels that we dispense to the nursing unit.

Extra Information

Some of us may want to stop with a minimum of information on our labels, but the hospital pharmacist has become a guide to the medical staff in drug therapy and the administration and storage of medication. Frequently there is additional information which we should add to labels. For example, a nurse received a vial of streptomycin containing one gram in 2.5 ml. The order was for 100 mg. and the nurse became confused. Perhaps she should have known the answer, but many do not, and she must either try to figure it out by some memorized formula or waste more time by a return trip to the pharmacy for this information. Cabarrus Memorial Hospital requires that the dose be included on all drug orders received by the pharmacy. This has proved to be an excellent aid in teaching the nurses dosage. It also gives the pharmacist an opportunity to check the dosage for error, and on such orders as the streptomycin, the pharmacist may simplify matters by adding 0.25 ml. equals 100 mg.

One nurse received a multiple dose vial of ACTH gel containing 40 units per ml. On the bottle was a big "40 U." Without reading the fine print, the nurse gave the patient the entire vial. For the sake of safety and accuracy, all parenteral preparations should be issued in single dose vials whenever practical. Whenever a multiple dose vial is issued, the pharmacist should take the time to type out the strength per ml. and add it to the label so that it will be more outstanding.

Route of Administration

Another responsibility of the pharmacist in putting extra information on the label is to include the route of administration. The pharmacist should be more informed on this subject than the physician or the nurse. A physician ordered digitoxin intramuscularly for a patient but after the proper dosage was administered the patient was not digitalized. The patient had not only failed to completely absorb the digitoxin, but had developed a sterile abscess from the alcoholic solution of the digitoxin given intramuscularly. With proper labeling, this could have been avoided. The pharmacist should add such notations as "for intravenous use only" or "for intramuscular use only." In the case of chlorpromazine injection, which can be quite painful if not given properly one could add the statement, "Dilute and give by deep I.M. slowly."

The Outpatient

With the outpatient, our responsibility is the same as that of the retail pharmacist. We should be sure that the patient's name is spelled correctly. Although the patient's name may not be too important to us, to him it is the most important item on the prescription. The smallest mistake in a patient's name will often cause him to call back and ask if he has the right medication because his name was not exactly correct. We should make certain that the directions to the patient are clear. One patient received a prescription for vaginal tablets labeled simply "as directed." The patient took the tablets orally. We should remember that patients seldom remember all of the directions told them by the physician and that it is our responsibility to make the directions clear to the patient. When the physician writes "as directed" we should write the directions on the label "take orally as directed," or "insert vaginally as directed."

Other important information for us to add to the label for both the hospital patient and the outpatient includes "shake well" on the stubborn suspensions and mixtures; the expiration date on biologicals, unstable antibiotics and ophthalmic solutions; and special notations regarding storage.

All of this extra thought and work requires time and knowledge but it is rewarding. It will add comfort and protection to the patient as well as aid the success of the physician's therapy. It will emphasize our importance as responsible members of the medical team and it will give us a great deal of personal satisfaction. So let us take a little extra time and make our label a credit both to our pharmacy and to our profession.

M. R. Kneifl

AND WHAT ABOUT ADMINISTRATION?

by M. R. KNEIFL

YOUR INTERESTS lie particularly in the area of professional developments. Your program at this convention affords ample evidence of your primary motivation and that is as it should be. In your specialty, however, the immediate concerns of many others—beside that of the patient—command your attention. These concerns you may consider extramural. They are, however, intimately bound up in the practice of your specialty and therefore have a strong claim on your interest. Your officers have afforded me this opportunity to outline some of the highlights in administration and its principles, particularly to focus your attention for a short time on their application to the service of your special concern.

In so many different aspects, the hospital is a complex structure. Its overall organization may well be one of the shadowy areas not too clearly understood. Its operational plan in terms of administration or management may require examination especially at the executive level to assure a more comprehensive grasp of its pattern. Perhaps a brief excursion into the field of administration may yield dividends for those of us who find ourselves occasionally at sea regarding our place in the hospital.

The Pharmacy Service is an essential service of the hospital so declared in the recently revised standards of the Joint Commission on the Accreditation of Hospitals. With this classification, the pharmacy takes on a slightly higher rank—in the administrator's outlook and, I dare say, from the viewpoint of the pharmacist.

Administration

Administration as a term is synonomous with management; one applies to government and non-profit activity while the other applies to business. In a recent book on *Principles of Management,* this passage occurs:

> The coordination of human effort is the essence of all grouped activities, whether the objectives are business, military, religious, charitable, educational, or social. The fundamental component of this association is management—the function of getting things done through others.

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Presented at the Annual Meeting of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, Detroit, Michigan, April 9, 1956.

In a British book published several years ago entitled *The Philosophy of Management,* a much shorter definition of administration was given as follows "the facilitation of service," in other words "getting things done." In order, however, to do this particularly for the larger undertakings involving several hundred staff workers, a study of the structure may be in order.

Our approach must be an orderly one if the steps in the development of the hospital organism are to be understood. Men and women are involved and human relations are a consideration, but the framework in which they serve seems to be a bit nebulous. Even at the departmental level this same condition may exist.

To visualize the growth of an idea out of which emerges a fully blossomed undertaking or project, someone must engage in planning in its broadest meaning. Clearly defining one's goal is undoubtedly the most difficult task. When this has been accomplished, the next step in this mental exercise is the drafting of the objective of this hospital.

From hospital literature, we are made aware of the four overall purposes of the community hospital—care of the sick, education of the professions, education of the public, and research. None will question these four considerations. As obvious as each is to all of us, an examination of conscience may reveal that our own personal outlook is perhaps a very limited one; our own personal objective as a member of the hospital team may encompass only one of these four.

It is true that circumstances of time, place, and opportunity strongly influence us at the moment. This is to be expected. But do these influences overshadow our better judgment or do they serve only as a challenge to spur us on to greater efforts and different approaches? Much of the answer is traceable to one's mental attitude. Recognition of the responsibility to make the hospital operation a four-fold program must be the essence of the objective—implementing these facets of the objective will no doubt take different forms.

Considerations which differentiate your hospital from some other are worthy of note. No two hospitals are alike so it is said; but certain characteristics define, identify or otherwise isolate these differentiating notes, however intangible these qualities may be.

Policies, Procedures, and Program

To carry out the objective of this hypothetical hospital, guides must be set down for the direction of all, those at the executive level as well as departmental directors. Guides of this character are usually referred to as policies. Prepared for activity at all levels, such policies are in written form on file for administrative use in carrying out the hospital objective.

Procedures are outlined so that the policies will be carried out in conformity with the wishes of the trustees and other responsible officers of the hospital.

Program is the detailed listing of all major services and activities to be carried out, again in relation to all or part of the overall objective of the hospital. The nature and scope of the program can always be verified by reference to the purposes recorded in the objective.

Organization

Briefly, the first step in this review, planning, has been broken down into objective, policies, procedures, and program. The next step is organization, *i.e.* the vehicle through which the *planning* will materialize. Note the following definition:

> Organization is here regarded as the establishment, with necessary authority and with provision for coordination, of relationships between persons assigned the performance of specialized tasks for the achievement of enterprise objectives. It is thus the structural relationships by which an enterprise is bound together and the framework in which individual effort is coordinated.

This second principle in administration touches upon specialization or departmentalization, relationships, authority, and responsibility—the structure or framework of this undertaking. Functional activities are of necessity an area of great concern in hospital operation as in manufacturing or distribution. Inherent in the plan you will find the key element "coordination" from the top eschelon to functional levels. The status of the various functions is provided for as would be expected.

Making the organization principles work, however, must have caused some of you loss of sleep. One of the best teaching aids in this area is the organization chart. One author describes this topic as follows:

> One of the tools for making organzation principles work is the organization chart. Any organization which exists can be charted, for a chart is nothing more than an indication of how departments are tied together along their principal lines of authority. It is, therefore, somewhat surprising to find the number of top managers who take pride in not having an organization chart or who feel that organization charts should be kept a secret.

Several well developed patterns of hospital operation have been set forth. Let me remind

you that only a few hospitals conform to these patterns. The fact that a hospital does not conform in all details doesn't necessarily imply the improper application of organizational principles.

Basically, the organization chart, introduced to management about thirty years ago, strives to portray the levels of operations, the relationships of functional activities, channels of responsibility, delegation of authority, lines of authority.

Staffing

This heading considers staff members, departmental directors, and others vested with administrative responsibility. Building an efficiently functioning organization is the direct responsibility of the administrator imposed by the board of directors, ordinarily in a special article in the corporation by-laws. Through these staff officers and departmental directors, the operation of the hospital will be carried out. The administrator is the coordinator working through the departmental heads. This is sound practice in management widely demonstrated in profit and non-profit enterprises.

Direction and Control

The principle of direction has to do with "putting into gear" the mechanism for initiating the hospital's program. The success of this step cannot be overestimated. Deficiencies in knowledge can bring about serious results: the administrator and his department heads bear the responsibility for smoothness in operation, coordinated efficiently and well executed; their teaching ability will come into place in directing the carrying out of the many activities. You can appreciate that this principle involves the assigning of authority, discipline, in-service training, harmony, morale, uniformity of understanding, etc. Perhaps, human relations is one of the dominant characteristics of this area; understanding on a broad front of all the component units active in the operation of supervisory techniques, sources of information, etc.

The final broad consideration is the principle of control. As pharmacists, the concept of controls is well known. In administration and management, it means just that—namely, that of "verifying whether everything occurs in conformity with the plan adopted . . ." This implies having a goal or objective and a plan for its realization. Control has some of the quality of planning, both are forward looking—one to formulate an approach for the accomplishment of an objective and the other to detect what forces may cause deviation from the established plan and to anticipate how best to prevent unwanted interference.

Applying These Principles to the Pharmacy Service

From the review above—a very superficial orientation to basic principles of administration—you have no doubt applied them consciously or unconsciously to your own specialty. If you haven't done so, you might engage in a little meditation reflecting on your own attitude concerning:

1. Planning for a more efficiently operating unit
   Setting the goal and objective of your department to realize its fullest professional development.
   Determining what policies are to govern the activities of this hospital service.
   Formulating procedures to assure the observance of the policies.
   Drafting the program as fully as circumstances permit, but as an operating document.
2. Organizing to achieve the goal
   Establishing the framework or structure, its functioning units, the relationships to other services of the hospital.
3. Staffing the service
   The chief as well as his associates and other workers, adequate in professional background to carry out the program.
4. Directing the program
   The division of work, delegating authority, personnel considerations and related matters—establishing how effective is the teaching ability of the chief pharmacist.
5. Controlling the operation
   Qualitative rather than quantitative, to realize how closely the program approximated the plan set up for its development—the responsibility of the chief pharmacist.

Special mention might be made of the educational and research responsibilities of the department whatever the limitations. These areas can be developed. As mentioned elsewhere, the extent to which activities in these areas are carried on can be traced to the attitude of the chief pharmacist. The evidence on this point may be the measure of the individual's professional interest.

In this last section, little mention has been made to coordination as an essential element. It applies at the departmental level as it does at the executive eschelon. The difference is obviously scope.

A final thought—is not the above the outline of your own pharmacy administrative manual? Amplify and elaborate under each heading to give expression to the conditions and procedures followed in your own local situation.

Paris about 1830.

HOSPITAL FORMULARIES OF THE 18TH AND 19TH CENTURIES . . .

III. Ratier's Formulary of the Parisian Hospital

by ALEX BERMAN

WHEN THE AMERICAN EDITION of Ratier's *Practical Formulary of the Parisian Hospitals* appeared in 1830, the *New-York Medical Journal* wrote: "The work will be found useful for those who intend to perfect their studies in the medical schools of the French metropolis."[1] Another medical periodical, *The American Journal of the Medical Sciences,* hailed Ratier's book as "an excellent little work," and pointed out that "the profession will know how to value prescriptions coming from such high authorities, and sanctioned by practitioners of such extensive experience as are the attendants of these [Parisian] hospitals."[2] Many of the American and British medical students in residence or heading for the French capital during the eighteen twenties and thirties must have felt impelled to read Ratier's work, either in the original or in the translation made by Dr. M'Lellan of Edinburgh.

Félix-Sévern Ratier was born in Paris in 1797.[6] After completing his medical training and internship, he was awarded an M.D. degree in 1819. He subsequently became a well known practitioner in Paris and a prolific medical writer. Among his publications was a book on pediatrics (*Essai sur l'éducation physique des enfants,* 1821); a two-volume work on domestic medicine (*Nouvelle médecine domestique,* 1826); a treatise on materia medica (*Traite élémentaire de matière médicale,* 1829); and a survey of medical clinics and civil hospitals of Paris (*Coup d'oeil sur les cliniques médicales de la Faculté et des hôpitaux civils de Paris,* 1831). Ratier's *Practical*

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The third in a series of articles on 18th and 19th century formularies.

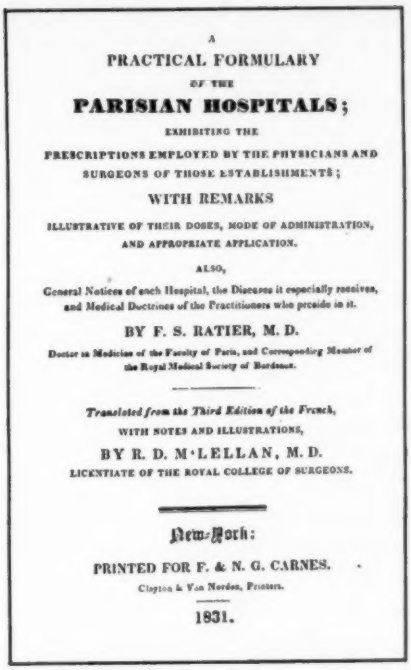
1. *The New-York Medical Journal, 1*:245, 1830.

2. *The American Journal of the Medical Sciences, 7*:562, 1830 (Philadelphia).

3. For sketches of Ratier's life, see: Pierre Larousse. *Grand Dictionnaire Universel du XIX Siècle.* Paris, 1875. Vol. 13, p. 724; *Biographisches Lexicon der hervorragenden Aerzte aller Zeiten und Voelker.* Berlin, Vienna, 1932. Vol. 4, p. 729.

Formulary of the Parisian Hospitals went through four editions (1823, 1825, 1827, 1832). An Italian translation was published at Padua in 1824, and in 1830 the third French edition was translated by M'Lellan at Edinburgh. An American reprint of M'Lellan's translation was immediately issued in New York and Boston, and again reprinted in New York in 1831. (See Fig. 1.)

To appreciate fully Ratier's formulary, the circumstances surrounding its composition should be clearly understood. To begin with, it was produced in the exciting milieu of the Paris Clinical School where modern scientific medicine as we know it today first emerged. The present day reader of this work can thus obtain a good first-hand impression of the medical doctrines and therapeutic trends current in the French capital during the Bourbon Restoration and at the beginning of Louis Philippe's reign. It is also interesting to note that the formulary and successive editions were compiled at a time when a number of brilliant French and German pharmacists were discovering new therapeutic agents, notably many of the important alkaloids.



A
PRACTICAL FORMULARY
OF THE
PARISIAN HOSPITALS;
EXHIBITING THE
PRESCRIPTIONS EMPLOYED BY THE PHYSICIANS AND SURGEONS OF THOSE ESTABLISHMENTS;
WITH REMARKS
ILLUSTRATIVE OF THEIR DOSES, MODE OF ADMINISTRATION, AND APPROPRIATE APPLICATION.
ALSO,
General Notices of each Hospital, the Diseases it especially receives, and Medical Doctrines of the Practitioners who preside in it.
BY F. S. RATIER, M. D.
Doctor in Medicine of the Faculty of Paris, and Corresponding Member of the Royal Medical Society of Bordeaux.

Translated from the Third Edition of the French,
WITH NOTES AND ILLUSTRATIONS,
BY R. D. M'LELLAN, M. D.
LICENTIATE OF THE ROYAL COLLEGE OF SURGEONS.

New-York:
PRINTED FOR F. & N. G. CARNES.
Clayton & Van Norden, Printers.
1831.

FIG. 1. *Title page of the second American reprint of Ratier's formulary in the M'Lellan translation.*

The Paris Clinical School (1800-1850)

During the first half of the nineteenth century, Paris became a vital center of medical progress and education. Describing the accomplishments of the Paris Clinical School, an eminent authority has written:

> . . . its contributions were largely due to the fact that its research and teaching were centered in 'clinics,' in the large hospitals of Paris, these medical factories filled with the waste products of the young industrial society and its peasant-absorbing giant cities. The hospitals gave previously unknown opportunities for mass observation and mass autopsies, suggesting thus the study of diseases rather than of sick individuals. One might therefore also call the medicine of this school and its Irish and English cousins 'hospital medicine' differentiating it thus from the 'library' and 'bedside' medicine of its predecessors and the 'laboratory medicine' of its successors.[4]

The general characteristics of the Paris Clinical School were its preoccupation with pathological anatomy at the autopsy table and the application of newly discovered techniques of percussion and auscultation, all correlated with meticulous clinical observation. "Here the decisive steps from art to science were made," writes Ackerknecht, "the medicine of symptoms was replaced by the medicine of lesions . . . It is no accident that the old symbol of the medical profession, the urinal, was replaced by the stethoscope, an invention of one of the most prominent members of this school, Laennec, and that the stethoscope has remained the symbol of the medical profession up to date."[5]

Within this general framework, however, there existed among the clinicians of the French metropolis a marked difference of opinion concerning the causes of diseases and the proper therapeutic procedures. For example, one of the most influential doctrines of disease causation current in Paris during a good part of the period under discussion was the one promulgated by François J. V. Broussais (1772-1838) in which virtually all disease was alleged to have a gastrointestinal origin.[6] The purported inflammation and excessive stimulation which Broussais and his followers attributed to this condition were treated by a liberal application of leeches, usually on the abdomen, supplemented with a rigid diet of emollient and acidulous liquids.[7] How influential this doctrine of "physiological medicine"

4. Ackerknecht, E. H.: "Elisha Bartlett and the Philosophy of the Paris Clinical School," *Bull. Hist. of Med.*, 24: 49, 1950.

5. In the *Year Book of The American Philosophical Society for 1951*, pp. 257-259.

6. For a superb study of Broussais, see Ackerknecht, E. H.: "Broussais or a Forgotten Medical Revolution," *Bull. Hist. of Med.*, 27:320-343, 1953.

7. *Ibid.*, p. 331.

became in France can be seen from the following statistics on the importation of leeches:[8]

	IMPORTS	EXPORTS
1820		1,157,920
1823	320,000	1,188,855
1827	33,634,494	196,950
1833	41,654,300	868,650
1834	21,885,465	868,650

On the other hand, some physicians followed a policy exemplified by Dr. J.C.A. Récamier (1774-1856) of the Hôtel-Dieu who, "In the midst of systems, rapidly succeeding each other in medicine . . . gives to none of them an absolute preference but borrows from each what his judgment approves . . ."[9] Others "seem . . . to have retained in their practice the old ideas in regard to the humoral doctrine, and the opinions of Brown on the use of stimulants and tonics;"[10] and still others were partisans of the Italian physician Giovanni Rasori (1766-1837), whose theory of "contra-stimulation" led to massive dosing with tartar emetic.[11]

Scope and Content of Ratier's Formulary *

"The present Formulary, entirely different from those that have already appeared," wrote Ratier of his 262-page pocket-size work, "will furnish, I hope, an exact guide to the students who attend the clinical courses in our hospitals, and to foreigners who desire to have a precise report of the practice, pursued by the physicians who conduct them."[12] With this object in mind, the author devoted the opening sixty-six pages of the formulary to a discussion of eleven Parisian hospitals, the prominent clinicians and surgeons who staffed these hospitals, and the diverse therapeutic doctrines prevailing at these institutions.

This was followed by a detailed 113-page description of medications and dosage forms employed in the Parisian hospitals, such as medicated baths, cataplasms, collyria, fomentations, fumigations, gargles, enemata, liniments, ointments and cerates, pills and boluses, potions or draughts, powders, and tisanes. Under each class of medication were listed representative formulas and therapeutic indications. With each formula was noted the hospital in which it was compounded, and the prescribing physician.

Of special interest were the many new therapeutic agents (e.g., morphine, strychnine, brucine, iodine, etc.) discovered by French and German pharmacists in the first decades of the nineteenth century and listed by Ratier in different dosage forms and preparations in a section of the formulary entitled "Particular Remedies" (pp. 179-232). These new items of the materia medica had been first codified in 1821 by the great pioneer of modern experimental pharmacology, François Magendie, in what was to become one of the most influential private (non-hospital) formularies ever compiled.[13] Many of Magendie's formulations were included in Ratier's work which terminated with a nine-page "Posological Table" and a twelve-page Index.

An Evaluation of Ratier's Formulary

One need go back only as far as the first published formulary of the Hôtel-Dieu of Paris (1753)[14] to note the remarkable change in materia medica, terminology, therapeutics and pharmaceutical formulation which had taken place in the hospital practice of the French capital during the span of seventy-five years. The "chemical revolution" which had been sparked by Lavoisier before his death in 1794, had by this time transformed chemical nomenclature in all pharmacopoeias and formularies of the world. Absent from Ratier's work are the excremental substances and fantastic recipes which cluttered pharmaceutical compendia from antiquity down to the 18th century. In the pages of this book are to be found the beginnings of modern experimental pharmacology, with formulations by Magendie of the new therapeutic agents, derived not only from clinical experience, but also through animal experimentation and emphasis on physiology. Several decades were still to elapse, however, before the heroic therapy of Ratier's period was finally abandoned.[15]

8. *Ibid.*, p. 323.

9. Ratier, F. S.: *A Practical Formulary of the Parisian Hospitals*. Trans. from the 3rd French ed., New York, 1830, p. 21.

10. *Ibid.*, p. 23.

11. An able discussion of Rasori is given by Ennio Rossi: "Giovanni Rasori (1766-1837), or Italian Medicine in Transition," *Bull. Hist. of Med., 29*: 116-133, 1955.

12. *Ibid.*, p. 11 .

*Based on M'Lellan's translation of the third edition, 1830.

13. *Formulaire pour l'emploi et la préparation de plusieurs nouveaux médicaments, tels que la noix vomique, la morphine, l'acide prussique, la strychnine, la veratrine, les alcalis des quinquinas, l'iode, etc.*, Paris, 1821.

14. *Bull. Amer. Soc. Hosp. Pharm., 13*:218-219, 1956.

15. This was especially true in the United States. See Berman, Alex: "The Heroic Approach in 19th Century Therapeutics," *Bull. Amer. Soc. Hosp. Pharm., 11*:321-327, 1954.

RESERPINE DOSAGE

Important Notice from FDA

The following letter signed by Ralph G. Smith, M.D., Chief, New Drug Branch, Bureau of Medicine has been recently released by the Food and Drug Administration. It is published here to alert hospital pharmacists of precautions which should be taken in controlling the dosage of reserpine and the dangers which may result when this dosage is not well controlled. Hospital pharmacists are urged to bring these recommendations to the attention of the medical staff in their hospitals.

This letter is being sent to all pharmaceutical firms holding effective new-drug applications for any product containing reserpine. Its purpose is to make certain recommendations with respect to the labeling of this drug. Although your current labeling may already incorporate many of the following points, it is requested that you give them serious consideration.

When reserpine was first introduced the available evidence suggested that it was a drug of very low toxicity, with no contraindications, and with a wide range of safe dosage. As the drug has been used more extensively it has become increasingly apparent that reserpine is not the innocuous substance it was first thought to be, that there are contraindications, and that the safe level for long term outpatient maintenance is lower than the originally recommended dosage schedule.

A number of firms marketing this drug have voluntarily reduced the dosage they are recommending and have added additional warning statements in their literature to physicians. Firms whose new-drug applications have recently become effective have incorporated many of these changed concepts into their labeling. However, the labeling of many preparations that have been marketed for a longer time fails to reflect these new data.

Papers and exhibits presented at the meeting of the American Medical Association held in Chicago June 11-15, 1956, emphasized the importance of apprising physicians of the latest information on the potential hazards of reserpine. There is an urgent need to bring all reserpine labeling into conformance with the best current available knowledge and to insure that this information reaches the practicing physicians.

Dosage

In the treatment of hypertension, or of anxiety states on an outpatient basis, it is the present consensus that the usual recommended maintenance dose should be 0.25 mg. daily. While doses up to 1.0 mg. daily may safely be recommended for the initiation of therapy, they usually should not be continued for longer than a week. No substantial benefit is obtained by larger doses sufficient to compensate for the added hazard. An occasional patient may require up to 0.5 mg. daily as a maintenance dose, but if adequate response is not obtained from this dosage, it is well to consider adding another hypotensive agent to the regime rather than increasing the dose of reserpine.

Continued use of reserpine in doses of 0.32 mg. daily has been shown to increase gastric secretion and gastric acidity in a significant number of cases whereas daily doses of 0.25 mg. have not been shown to do so. Doses of 0.5 mg. daily for as short a time as two weeks produce this effect in most of the individuals tested and have resulted in massive gastro-intestinal hemorrhage or perforation of an ulcer. More important, reserpine in daily doses of 0.5 or 1.0 mg. produces severe depression in a significant number of individuals, and has precipitated a very considerable number of suicidal attempts, some of them successful. Many of these depressions have been severe enough to necessitate long-term hospitalization in psychiatric institutions. For these reasons it is believed that reserpine in daily doses above 0.25 mg. is contraindicated and in lower doses should be used with caution in patients with a history of mental depression, peptic ulcer or ulcerative colitis. Furthermore, physicians should be specifically cautioned with respect to the danger of depression, and should be urged to follow their patients carefully with this in mind, and to alert responsible members of the family to the hazards. The same general principles should apply to the labeling of Rauwolfia serpentina.

The optimal dose of reserpine in the treatment of institutionalized psychotic patients is not equally well established. There is no general agreement as to the safety of dosages higher than 5 mg. daily, and it is believed that the usual maintenance dose should be stated as 2.0 mg. daily. Labeling of the higher strength tablets of reserpine intended for neuropsychiatric use should contain prominent warnings that reserpine should be discontinued for approximately one week before instituting shock therapy, since it may result in increased severity of convulsions, respiratory difficulty, and other complications; that a syndrome suggestive of Parkinsonism develops frequently in patients on large dosage or discontinuing the drug; and that the possible dangers of hypotension and fluid retention should be borne in mind when large doses are used in debilitated patients or those with cardiac disease.

Reserpine tablets of 0.1, 0.25 or 0.5 mg. are suitable for the treatment of hypertension and mild anxiety states. Reserpine tablets of 0.75 mg. potency or higher are suitable only for use in the neuropsychiatric treatment of hospitalized patients under carefully controlled conditions, and the labels should state "For neuropsychiatric use only." In view of the wide variety of dosage forms available it is important that the label declaration of the strength of the tablet should be very prominent, and preferably should be of a different color from the rest of the label in order to obviate any chance of 1.0 mg. tablets, for instance, being dispensed in error as 0.1 mg. tablets.

In our opinion it is important, in the interests of safety, to incorporate the above concepts in your labeling for reserpine. Accordingly, it is requested that your labels and labeling be revised, if indicated, to reflect the changes suggested above and submitted as a supplement to your new-drug application at your earliest convenience. Your cooperation will be appreciated.

Sincerely yours,

Ralph G. Smith, M.D.
Chief, New Drug Branch
Bureau of Medicine

Combining the effects of Cobalt-60 and Chlorobutanol for STERILIZING OPHTHALMIC SOLUTIONS

by JOHN W. WEBB AND C. V. HAYES

A NUMBER OF AUTHORS HAVE RECOMMENDED various procedures for preparing sterile solutions of drugs intended for ophthalmic use. A paper by Murphy[1] is of particular interest since it reports the clinical experience of twenty-nine years. Of the four substances tested for antibacterial properties, Murphy recommended chlorobutanol as "most nearly fulfilling the requirements for the ideal preservative for ophthalmic solutions." In an excellent approach to the subject, Lawrence[2] also reports chlorobutanol to be a satisfactory antibacterial agent. The increasing number of reports on this subject in recent years indicates that the ideal procedure for sterilizing ophthalmic solutions is probably still to be found.

The cobalt-60 source used for treating patients in our Radiology Department was considered for its lethal action on bacteria. Articles by Lawrence[3], Summer[4], and others are in general agreement that an exposure to about two million roentgens is required to give 100 percent death rate. Such an exposure was not practical in our case since it would mean that an exposure period of approximately twenty-four hours would be necessary. The cobalt-60 source was available only when patients were not receiving treatment. The possibility existed that a combination of a chemical possessing antibacterial properties (chlorobutanol) and an ionizing radiation source (cobalt-60) might produce an additive or potentiating effect so that a shorter exposure time might be adequate. It appears, after a search of the literature, that such an approach has been published.

Bracon* polyethylene dropper tubes similar to those described by Wu and Job[5] were used throughout the experiment. For our investigation, the company was willing to supply us with tubes sterilized by exposure to an electron stream generated by a 2,000,000 volt Van de Graaff electron accelerator. The effect of radiation on polyethylene is well covered by Charlesby[6].

Procedure with Physostigmine Salicylate

Solutions of 0.25 percent physostigmine salicylate were prepared by dissolving the alkaloidal salt in sterile isotonic saline and filtering through a medium-porosity sintered glass funnel. One-half ml. of a twenty-four hour broth culture of *Staphylococcus aureus* was then added to each 100 ml. of solution. Each sterile polyethylene dropper tube was then filled with 3 to 4 ml. of the contaminated solution. A representative number of these were reserved for controls. The rest were exposed to gamma radiation from the cobalt-60 source for periods varying up to two hours. The solutions had a maximum exposure of 700 roentgens per minute at the nearest point, a minimum absorption of 460 roentgens per minute at the farthest point. This would give an average total exposure of about 70,000 roentgens in a two hour period.

The same procedure was repeated with the modification that the physostigmine salicylate was dissolved in a sterile isotonic saline solution containing 0.5 percent chlorobutanol. *Pseudomonas aeruginosa* replaced *Staphylococcus aureus* in a second series.

Both solutions with and without chlorobutanol were exposed to irradiation simultaneously for the same length of time.

*Bracon is a trade name for the Bradley Container Corp., Maynard, Mass.

JOHN W. WEBB, formerly Chief Pharmacist at Hartford Hospital, Hartford, Conn., is now associated with the Pharmacy Department, Massachusetts General Hospital, Boston, Mass. and C. V. HAYES is Bacteriologist, Hartford Hospital, Hartford, Conn.

ACKNOWLEDGMENTS. Grateful acknowledgment is given to Miss Thelma Lezberg, pharmaceutical chemist, Massachusetts General Hospital, Miss Elizabeth Blaine, radiology technician, and other members of the Radiology Department and Ophthalmology Department of Hartford Hospital for their help, advice, and encouragement.

ABOVE, *Theratron Rotational Cobalt-60 Unit*
BELOW, *similar unit in operation*

Results with Physostigmine Salicylate

Solutions of 0.25 percent physostigmine salicylate exposed for fifty-five minutes had no visible physical change whether chlorobutanol was included or not, nor was there any visible physical changes in the unexposed controls. Of the solutions exposed for two hours, the solutions without chlorobutanol became pink in color, while those with chlorobutanol remained colorless. It is known that upon standing or autoclaving, solutions of physostigmine turn pink due to oxidation. A statement by O'Meara[7] supports the belief that oxidation occurs upon exposure to irradiation. Upon standing over a prolonged period of time all samples, both control and exposed, turned pink. The exposed solutions containing chlorobutanol were the last to become colored, indicating a stabilizing influence in the chlorobutanol solutions.

TABLE I. BACTERIOLOGICAL RESULTS OBTAINED AFTER CONTAMINATED SOLUTIONS CONTAINING 0.25 PERCENT OF PHYSOSTIGMINE SALICYLATE HAVE BEEN EXPOSED TO IRRADIATION BY COBALT-60 FOR 55 MINUTES AND FOR 2 HOURS.

CONTAMINATED ORGANISM	CULTURE DATE	CONTROL (UNEXPOSED)	EXPOSED 55 MINUTES	EXPOSED TWO HOURS
Pseudomonas aeruginosa	5/2/55	4†	4 Samples Negative	
Exposed 4/29/55	5/9/55	4†	4 Samples Negative	
(No Chlorobutanol)	7/19/55	4†	4 Samples Negative	
	10/17/55	4†	4 Samples Negative	
Pseudomonas aeruginosa	5/2/55	Negative	4 Samples Negative	
Exposed 4/29/55	5/9/55	Negative	4 Samples Negative	
(With 0.5% Chlorobutanol)	7/19/55	Negative	4 Samples Negative	
	10/17/55	Negative	4 Samples Negative	
Pseudomonas aeruginosa	5/23/55	4†		4 Samples Negative
Exposed 5/20/55	5/30/55	4†		4 Samples Negative
(No Chlorobutanol)	7/19/55	4†		4 Samples Negative
	10/17/55	4†		4 Samples Negative
Pseudomonas aeruginosa	5/23/55	Negative		4 Samples Negative
Exposed 5/20/55	5/23/55	Negative		4 Samples Negative
(With 0.5% Chlorobutanol)	7/19/55	Negative		4 Samples Negative
	10/17/55	Empty Tube		4 Samples Negative
Staphylococcus aureus	5/2/55	4†	4 Samples 4†	
Exposed 4/29/55	5/9/55	4†	4 Samples 4†	
(No Chlorobutanol)	7/19/55	4†	2 x 4† 1 x 2† 1 empty tube	
	10/17/55	4†	3 x 4† 1 empty tube	
Staphylococcus aureus	5/2/55	4†	2 Samples 2 to 3†	
Exposed 4/29/55			2 Samples 1†	
(With 0.5% Chlorobutanol)	5/9/55	4†	4 Samples Negative	
	7/19/55	4†	4 Samples Negative	
	10/17/55	4†	4 Samples Negative	
Staphylococcus aureus	5/23/55			
Exposed 5/20/55	5/30/55	4†		4 Samples Negative
(No Chlorobutanol)	7/19/55	Negative		4 Samples Negative
	10/17/55	Negative		4 Samples Negative
Staphylococcus aureus	5/23/55	4†		4 Samples Negative
Exposed 5/20/55	5/30/55	Negative		4 Samples Negative
(With 0.5% Chlorobutanol)	7/19/55	Negative		4 Samples Negative
	10/17/55	Negative		4 Samples Negative

Since chlorobutanol hydrolyzes upon autoclaving with a resultant decrease in *p*H value and since alkaloids in general are more stable in an acid medium, it was felt that exposure to gamma rays for a two-hour period not only caused an oxidation change in the physostigmine salicylate, but also was probably causing chlorobutanol to hydrolyze. Subsequent *p*H measurements showed a control chlorobutanol sample to have a *p*H value of 6.1 while a sample exposed for two hours had a *p*H value of 4.2.

Bacteriological

Table I represents bacteriological results obtained. Bacterial growth was rated as 0, 1+, 2+, 3+, and 4+, indicating sterility, light growth, moderate growth, moderately-heavy growth, and heavy growth respectively. A chlorobutanol-free solution of physostigmine salicylate exposed for two hours had a 4+ *Staphylococcus aureus* growth at the end of three days but was sterile at the end of ten days. This may be due to a residual effect as mentioned by Lawrence[3]. It appears that growth of pseudomonas may be inhibited by a one hour exposure, but at least two hours are needed to inhibit the growth of staphylococci. This is in agreement with the findings of Goldblith[8]. The difference in time required for inhibition may be explained in part by the fact that pseudomonas is a larger organism (2-10 u) than is the staphylococcus (0.8-1 μ) and thus more easily affected by radiation. Chlorobutanol alone had an effective bacteriostatic action on pseudomonas, but did not adequately control staphylococcus growth. It appears to have an additive or potentiating effect when used in conjunction with gamma radiation.

TABLE II. EFFECT OF 1 AND 2 HOUR PERIODS OF EXPOSURE TO IRRADIATION WITH COBALT-60 UPON THE *p*H OF A 2.2 PERCENT SOLUTION OF FLUORESCEIN SODIUM

	WITHOUT CHLOROBUTANOL	WITH CHLOROBUTANOL
Control	*p*H 9.0	*p*H 8.6
One hour exposure	9.1	8.7
Two hour exposure	9.1	8.7

Chemistry

Although a solution containing chlorobutanol exposed for two hours was yellowish-pink in color and had a significant decrease in its *p*H value, a cursory spectrophotometric analysis showed no significant decomposition. A "shake-out" assay by the U. S. P. method showed a control solution to have a potency of 0.248 percent while a sample exposed two hours assayed 0.244 percent.

It is assumed that if a reducing agent such as sodium bisulfite is adequate to prevent oxidation and a color change in physostigmine salicylate solutions as commonly prepared, it should be adequate in these solutions. We did not explore this assumption further for our attention became focused on fluorescein sodium.

Murphy[1] reported that attempts to sterilize fluorescein sodium solutions with chlorobutanol were not always satisfactory. It was felt that if a solution of fluorescein sodium could be rendered sterile, other commonly used ophthalmic solutions should be sterilized with relative ease. It was realized that certain conditions, such as *p*H, influence results obtained. For instance, an alkaline fluorescein sodium solution should cause an oxidation effect different from the more acidic physostigmine salicylate solution[9].

Procedure with Fluorescein Sodium

Fluorescein sodium was dissolved to make a 2.2 percent solution following the same procedures outlined under physostigmine salicylate. All other steps taken were the same except for the exposure periods.

TABLE III. BACTERIOLOGICAL RESULTS OBTAINED AFTER CONTAMINATED SOLUTIONS CONTAINING 2.2 PERCENT OF FLUORESCEIN SODIUM HAVE BEEN EXPOSED TO IRRADIATION BY COBALT-60 FOR 15, 30, AND 60 MINUTES.

CONTAMINATING ORGANISM	CULTURE DATE	CONTROL	EXPOSED 15 MINUTES	EXPOSED 30 MINUTES	EXPOSED 60 MINUTES
Pseudomonas aeruginosa Exposed 11-16-55 (No Chlorobutanol)	11-21-55		5 Samples 4†	5 Samples 4†	3 Negative 1 x 1 Colony 1 x 2 Colony
	11-28-55	2 Samples 4†			
	12-3-55		5 Samples 4†	5 Samples 4†	4 Negative 1-1 Colony (Contaminant?)
	12-9-55	2 Samples 4†			
	1-13-56	2 Negative	5 Negative	5 Negative	5 Negative
Pseudomonas aeruginosa Exposed 11-16-55 (With 0.5% Chlorobutanol)	11-21-55		5 Negative	5 Negative	5 Negative
	11-28-55	2 Negative			
	12-3-55		5 Negative	5 Negative	5 Negative
	12-9-55	2 Negative			
	1-13-56	2 Negative	5 Negative	5 Negative	5 Negative
Staphylococcus aureus Exposed 11-16-55 (No Chlorobutanol)	11-21-55		5 Samples 4†	5 Negative	5 Samples 4†
	11-28-55	2 Samples†			
	12-3-55		5 Samples 4†	2 Negative 1-2 Colonies 1-3 Colonies 1-1 Colony	4 Negative 1-1 Colony
	12-9-55	2 Negative			
	1-13-56	2 Negative	5 Negative	5 Negative	5 Negative
Staphylococcus aureus Exposed 11-16-55 (With 0.5% Chlorobutanol)	11-21-55		5 Negative	5 Negative	5 Negative
	11-28-55	2 Negative			
	12-3-55		5 Negative	5 Negative	4 Negative 1-1 Colony
	12-9-55	2 Negative			
	1-13-56	2 Negative	5 Negative	5 Negative	5 Negative

TABLE IV. BACTERIOLOGICAL RESULTS OBTAINED AFTER CONTAMINATED SOLUTIONS CONTAINING 2.2 PERCENT OF FLUORESCEIN SODIUM HAVE BEEN EXPOSED TO IRRADIATION BY COBALT-60 FOR 15, 30, AND 45 MINUTES.

CONTAMINATING ORGANISM	CULTURE DATE	CONTROL	EXPOSED	EXPOSED	EXPOSED
			11-16-55 30″ 11-17-55 15″ 11-18-55 15″	11-16-55 30″ 11-17-55 30″	11-16-55 45″ 11-17-55 15″
Pseudomonas aeruginosa (No Chlorobutanol)	11-21-55		5 Samples 4†	5 Negative	3 Negative 2x1 Colony
	11-28-55	2 Samples 4†			
	12-3-55		1 with 2 Colonies 2 Samples 2† 2 Negative		
	12-9-55	2 Samples 4†		5 Negative	5 Negative
	1-13-56	2 Negative	5 Negative	5 Negative	5 Negative
Pseudomonas aeruginosa (With 0.5% Chlorobutanol)	11-21-55		5 Negative	5 Negative	5 Negative
	11-28-55	2 Negative			
	12-3-55		5 Negative		
	12-9-55	2 Negative		5 Negative	4 Negative-1 with 1 Colony
	1-13-56	2 Negative	5 Negative	5 Negative	5 Negative
Staphylococcus aureus (No Chlorobutanol)	11-21-55		5 Negative	5 Negative	5 Negative
	11-28-55	2 Samples 2†			
	12-3-55		4 Negative 1 with 4 Colonies		
	12-9-55	2 Negative		3 Negative 1 with 3 Colonies	5 Negative
	1-13-56	2 Negative	5 Negative	4 Negative	5 Negative
Staphylococcus aureus (With 0.5% Chlorobutanol)	11-21-55		5 Negative	5 Negative	5 Negative
	11-28-55	2 Negative			
	12-3-55		5 Negative		
	12-9-55	2 Negative		5 Negative	5 Negative
	1-13-56	2 Negative	5 Negative	5 Negative	5 Negative

Results with Fluorescein Sodium

No visible physical changes were noted in either the controls or the exposed samples.

Since chlorobutanol hydrolyzes to give acid *p*H values, the possibility exists that it could be incompatible with the alkaline fluorescein sodium solution. Table II shows a decrease of 0.4 *p*H unit in fluorescein sodium solutions containing chlorobutanol. However, this combination has been used clinically for years in various hospitals so that any incompatibility is probably more theoretical than real.

There was no significant change in *p*H between the control and exposed samples. (See Table II.)

Bacteriological

Tables III and IV represent bacteriological results obtained. Table III shows no variation between the exposed and non-exposed samples containing chlorobutanol. However, on other occasions controls containing chlorobutanol had a 4+ staphylococcic growth when cultured four days after they were contaminated, while four samples of the same solution showed 3+ staphylococcic growth after one hour's exposure. Since bacterial cells have varying degrees of sensitivity at different stages of their life cycle it was felt that intermittent exposure might prove more effective than an equal period of continuous exposure. Table IV indicates that this may be true.

It should be emphasized that samples with chlorobutanol in Table V were prepared separately from those without chlorobutanol. The difference in assay results between the samples with and without chlorobutanol is purposely included to illustrate our findings that if volumes of less than twenty-five ml. are used, consistently higher figures are obtained than when exactly twenty-five ml. is used as specified in the U. S. P. Thus the figures of 2.46 percent, 2.45 percent, and 2.43 percent are false because less than twenty-five ml. of the samples was used. If the volumes assayed were constant, there was no significant degradation caused by irradiation for periods up to two hours, nor was there any significant variation in potency between the samples with chlorobutanol and those without chlorobutanol.

TABLE V. RESULTS OF REPRESENTATIVE CHEMICAL ASSAYS OF SOLUTIONS PREPARED TO CONTAIN 2.2 PERCENT OF FLUORESCEIN SODIUM AFTER EXPOSURE TO IRRADIATION BY COBALT-60 FOR 1 AND 2 HOUR PERIODS.

	WITH CHLOROBUTANOL	WITHOUT CHLOROBUTANOL
Control	2.46%	2.27%
One hour exposure	2.45%	2.29%
Two hour exposure	2.43%	2.33%

Comments

Because of the color of fluorescein sodium no inflammation could be seen in the eyes of a rabbit after introduction of the solution. However, no irritation or damage could be detected when drops of various exposed samples were introduced into the eyes of one of the authors. A more adequate exploration of this phase will be done in the future. An elaborate procedure to study possible irritation was not considered particularly necessary since an ophthalmic solution sterilized by irradiation is already commercially available from the Upjohn Company. The energy level used is much higher than ours.

There are certain conditions that might be explored in further investigation. A shorter interval between exposure and bacteriological tests would probably result in an easier evaluation of any trends. There should be a sufficient interval, however, to show the true results caused by the time lag effects of gamma radiation. The dropper tubes in this experiment were filled with 3 to 4 ml. of the solutions. To obtain consistent results the volumes must be constant for Goldblith[01] has shown that for *E. coli* the mean lethal dose (D_0) for 5 ml. samples irradiated is greater than for 3 ml. samples. The difference is ascribable to the difference in air spaces in the identical ampuls that contained all samples. *Pseudomonas aeruginosa* did not indicate susceptibility to oxygen by varying volumes.

It should be emphasized that the source of cobalt-60 used is intended primarily for treatment of patients and is poorly designed for sterilization. It was used because it was the only source available to us. A different arrangement of the cobalt-60 would give more roentgens with even smaller amounts of cobalt-60.

Summary

1. Small volumes of 0.25 percent physostigmine salicylate and 2.2 percent fluorescein sodium solutions were exposed to cobalt-60 for periods up to two hours. This preliminary investigation shows promising antibacterial effects.

2. Chlorobutanol and gamma radiation appear to have an additive or potentiating antibacterial effect.

3. Intermittent exposure to gamma radiation seems to have a greater effect on the death rate of bacteria than does continuous exposure for the same period.

4. Prolonged exposure to gamma radiation apparently causes an oxidation of solutions of physostigmine salicylate and an hydrolysis of chlorobutanol.

5. Chemical analyses of 0.25 percent physostigmine salicylate and 2.2 percent fluorescein sodium solutions containing chlorobutanol show no significant degradation after exposure to cobalt-60 for periods up to two hours.

6. Small volume polyethylene dropper tubes were used throughout the investigation.

7. The combination of chemicals having antibacterial activity with gamma radiation may prove to be an important economic measure to those who use fission products for sterilization since the time required for sterilization is less than that of gamma radiation alone.

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an improved method for PREPACKAGING DRUGS for rapid filling of requisitions

by FRANCES P. NICHOLAS *and* FRANCESCA SAYOC

A MOST IMPORTANT FUNCTION of hospital pharmacy is to supply information concerning drugs, in addition to supplying the drugs themselves. In a large general hospital the problem is often not so much how to supply the information, but how to supply the drugs as quickly as possible and in a uniformly packaged size. This situation has created a desire for a method of anticipating the demand for certain stock items. By accurately anticipating these demands a system of prepackaging can be placed in operation.

With such a system there is no lessening of the work load, but a more effective and efficient work schedule may be used. A completely organized plan of prepackaging must include a method for refilling and inspecting the original containers once these containers are returned by the wards. At all times there must be on hand a basic stock of prepackaged items for such a plan to operate effectively.

First Considerations

Before such a plan can be instituted the following important steps must be taken:

1. Average usages of all preparations must be determined so that the most convenient pack-

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1. The Pharmacist preparing labels for bottles to be prepackaged. The plates used to print these labels are prepared for the pharmacy by another hospital department and an addressograph machine is used to print the labels from the plates. Each plate is completely numbered and alphabetized for every item dispensed by the pharmacy. The numbers are found on the requisition form which is shown above the table. The label states the generic or official name, dosage size, concentration, and complete instructions as to use.

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2. Prepackaging for inpatients. Sorting and grouping of tablet bottles. Only one type of tablet is prepackaged at a time. In this section all new bottles to be used as stock are labeled, each label is coated with collodion to increase its lifetime. The pharmacist working in this section must keep accurate records on consumption, control, and lot numbers of the tablets prepackaged.

age sizes can be prepared. This information is easily obtained from the records of various wards using such items.

2. The most practical dosage forms for administration by the nursing staff must be determined.

3. The shelf-life and proper storage of the items to be prepackaged must be considered. All items cannot be treated the same.

4. Extreme care must be taken to see that all preparations are labeled properly. Special care must be taken with external preparations so that they cannot possibly be confused with internal medications. Products having a short shelf-life or requiring refrigeration should be labeled and dispensed in such quantities so as to preclude the possibility of deterioration for a reasonable period of time after they have been dispensed from the pharmacy.

The above points are just a few of the most important ones to be stressed. Many other aspects of a prepackaging system should be taken into consideration. Care and accuracy must never be sacrificed for speed. While a prepackaging method will increase speed and efficiency, it can never be left unsupervised. The various units must be constantly inspected by authorized personnel if such a system is to work safely and well.

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3. *This photograph shows the stock shelves with the drugs placed in alphabetical order. These shelves are refilled daily so that adequate stock is maintained at all times.*

4. *Ward orders are being placed in delivery boxes which are labeled with discarded x-ray film. Inpatient requisitions for tablets, ampuls, powders, and ointments are filled in this section of the pharmacy. Ampuls and vials which do not require refrigeration are arranged in alphabetical order in bins directly below the tablets.*

5. *Filling ward requisitions for liquid preparations. Each prepackaged liquid is rechecked before it is placed in the delivery truck. The liquid stock is prepared in the same manner as tablet stock. Proper storage instructions are included on each label. There are two pickups and deliveries made daily; "stat" and "waiting" requisitions are filled as ordered.*

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The hospital administrator should insist upon a

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Hospital Safety Manual **has been published jointly by the American Hospital Association and the National Safety Council. Among the sections concerned with hospital pharmacy practice is one under "Special Department Problems—Pharmacy," which includes basic instructions to be followed in the pharmacy. Another section on "Safety of the Patient," covers Errors in Medication, and a third part is entitled "Medications—General Precautions."**

Since those practicing in hospital pharmacy must concern themselves with safety practices, excerpts from the *Hospital Safety Manual* are printed here.

SAFETY PRACTICES in hospital pharmacy

BASIC SAFETY INSTRUCTIONS IN THE PHARMACY

1. Keep poisons and narcotics separately stored and locked.
2. Permit no unidentified substance to remain in the pharmacy.
3. Check labels twice; first when the order is filled, then as the stock bottle is put away.
4. Pour away from the label so that it will not get obscured by spillage.
5. Pour below eye level and avoid splashing. Handle corrosive chemicals with great care.
6. Give close attention to materials being heated. Do not leave the process unattended.
7. Keep narcotics and flammable liquids in as small supply as possible.
8. In the handling of a number of tablets which are available in different sizes, yet which look much the same, use special care in filling prescriptions.
9. When pouring acetic and phenolic substances do not stand over them.
10. Have divided, lined carts for delivery to avoid breakage.
11. Set up and follow through on a system of dating and replacing medications which deteriorate.
12. Under no circumstances combine partial bottles of drugs.
13. To avoid contamination, measure out drugs on clean papers.
14. Flammable liquids should be kept in small quantities, and in safety cans.

Safety of the Patient—Errors in Medication

Errors in medication carry the gravest possible consequences and everything humanly possible should be done to prevent them. Precisely and fully defined relationships should exist among doctors, nurses, nursing supervisors and pharmacists so that medications are constantly under strict control and are kept properly identified. Under no circumstances should the nurse change labels, refill containers, or otherwise step outside of her assigned routine. It is often the seemingly inno-

Excerpts from: *Hospital Safety Manual,* a joint publication of the American Hospital Association and the National Safety Council. 1954. $2.00

cent little "fix it up" actions which cause medications and blood types to be confused.

A type of mistake frequently made in medication is error in dosage. Such errors often are caused by confusion resulting from use of both the metric and the apothecary systems.

Sometimes a mistake in identifying the drug itself occurs, in part because the names of drugs are so often difficult and in part because official and proprietary names are used interchangeably. Some errors are caused by failure to follow technique in reading and in reaching for the bottle.

The remedy for this kind of error is thorough training of nurses in both measurement systems, the metric and apothecary, the development of procedures, and close supervision to see that these procedures are followed out.

It is not recommended that specific locations for specific drugs be designated, because the practice encourages "just reaching" instead of looking.

The hospital administrator should insist upon a clear-cut statement of policy in the giving of instructions to nurses by physicians. There should be written agreement as to what kinds of orders may be given verbally, and what kinds of orders must be in writing. The nursing staff has a right to expect that written orders shall be legible, and should be authorized to ask for confirmation when orders are obscure or ambiguous.

The first step in administering medication is to make positive identification of the patient. No one identification means is always completely satisfactory. Patients, especially child patients, change beds without notice, labels and charts are misplaced, patients even respond in the affirmative to the wrong name.

Errors in medication should be reported to the nursing supervisor and to the physician immediately on discovery. If an antidote is specified in standing instructions, it should be applied at once.

MEDICATIONS—GENERAL PRECAUTIONS

1. Identify medicine under good light. Concentrate on what you are doing.
2. Never give medicine from an unmarked or poorly marked container.
3. Follow directions on the label. Some contents must be shaken for instance, to ensure proper dosage.
4. Keep narcotics and poisons out of sight and reach of patients and visitors.
5. Keep poisons in distinctly shaped bottles, or tape down caps and corks.

**Stay up-to-date on the effects of poisons and on their antidotes.

MEDICATIONS—ADMINISTRATION

1. Select medicine as directed.
2. Read the label **three times:**
   a. When taking the container from the shelf.
   b. Before measuring.
   c. While replacing the container on the shelf.
3. To keep the label clean, hold in the palm of the hand when pouring.
4. Hold the medicine glass at eye level in the left hand, thumbnail on the required mark.
5. Place the medicine glass with the corresponding medicine card.
6. To identify, address the patient by name and get a positive response.
7. Check the medicine again with the card.
8. Wait to see that the medicine is taken.

**Except under responsible orders, never administer dosage which has been selected and measured by another person.

1956 INSTITUTES on hospital pharmacy

THREE INSTITUTES ON HOSPITAL PHARMACY held during the summer months provided approximately 300 practitioners with refresher courses designed to bring them up-to-date in all phases of pharmacy service. Institutes were held during the summer months in Milwaukee, Wisconsin, Austin, Texas, and Chicago, Illinois, the first one being sponsored by the Catholic Hospital Association and the latter two by the American Hospital Association. In each instance the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and the American Pharmaceutical Association, as well as the local hospital pharmacy groups, cooperated. The SOCIETY was represented by President Paul Parker at each of the Institutes with other officers and members of the Executive Committee taking an active part in the meetings. Mr. M. R. Kneifl, Executive Secretary of the Catholic Hospital Association, served as coordinator for the Milwaukee Institute and Mrs. Helen Swift, Administrative Assistant, American Hospital Association, served as coordinator for the Austin and Chicago Institutes. Other representatives of the sponsoring organizations actively participating in the planning for the Austin and Chicago Institutes were Dr. Sarah Hardwicke, Secretary of the A.H.A.'s Council on Professional Practice, and Mrs. Gloria N. Francke, Secretary of the ASHP.

Common to all three of the Institutes was the fact that a high percentage of those participating were attending a national institute for the first time. Registrants came from various types of hospitals ranging in bed size from approximately 75 beds to 3,000 beds. Despite this great variance in size and type of institutions represented, there was unusual unanimity of interest in the problems in hospital pharmacy. The programs for the three institutes were similar, covering trends in therapy, papers on effective communications and writing, manufacture of sterile products, the Pharmacy and Therapeutics Committee, records and reports, and the law of hospital pharmacy.

Also significant during each of the institutes was the interest in all new phases of hospital pharmacy practice and in trends in the total medical care picture which affects the profession as a whole.

Those attending each of the institutes heard

progress reports on the Audit of Pharmaceutical Service in Hospitals which is being conducted through the Division of Hospital Pharmacy under a grant from the U. S. Public Health Service. Mr. Clifton Latiolais, Assistant Director of the Program, spoke at the Milwaukee and Chicago institutes and Dr. Don E. Francke, Director of the Program, spoke at the Texas Institute.

Milwaukee Institute

The Institute in Milwaukee was sponsored by the Catholic Hospital Association and the program was in charge of the Committee on Hospital Pharmacy Practice headed by Sister Marion, S. C., St. Elizabeth Hospital, Elizabeth, N. J. Other members serving on the Committee during the past year were: Sister M. Alberta, S. P., St. Vincent de Paul Hospital, Brockville, Ontario, Canada; Sister M. Cherubim, O.S.F., St. Joseph's Hospital, Joliet, Ill.; Sister M. Franciscana, O. S.F., St. Joseph's Hospital, Memphis, Tenn.; and Sister M. Rebecca, O.S.B., St. Benedict's Hospital, Ogden, Utah.

Members of the Wisconsin Society of Hospital Pharmacists, headed by President Dell Olszewski, also assisted in making local arrangements. Dr. Robert P. Fischelis, Secretary of the American Pharmaceutical Association, represented the A. Ph.A. and spoke during the sessions on "Voluntary Approval of Internships."

A highlight of the Milwaukee Institute was presentation of testimonials to Sister Mary John, Mercy Hospital, Toledo, and to Sister Mary Ludmilla, Firmin DesLoge Hospital, St. Louis, Mo., for outstanding contributions to hospital practice over a period of many years. Sister Ludmilla and Sister Mary John, both Charter Members of the ASHP, were the first two treasurers of the Society. Sister Mary Ludmilla served from 1942 to 1943 and Sister Mary John from 1943 to 1946.

The program for the Institute emphasized the general themes—Education and Evaluation Controls, Administration and Accreditation, Public Relations and Management, Effective Communications, and Legal Considerations in Pharmacy Functions.

Papers listed as "best" by those attending the Milwaukee Institute were the following: "The Relationship of Drugs to Nutrition," by Dr. Victor E. Levine, Professor of Biological Chemistry and Nutrition, Creighton University School of Medicine, Omaha, Neb.; "Ataractic Drugs," by Edward J. Ireland, Professor of Pharmacognosy and Pharmacology, Loyola University College of Pharmacy, New Orleans, La.; and "Understanding and Getting Along with Others," by Rev. Trafford P. Maher, S.J., Director, Department of Education, St. Louis University, St. Louis, Mo.

Members of a Panel Discussion on "Solving Problems in the Small Hospital Pharmacy"—at the C.H.A. Institute in Milwaukee.

The Milwaukee Institute was held in conjunction with the C.H.A.'s Annual Convention, May 19-22. Meetings were held in the Milwaukee Auditorium.

Texas Institute

Members of the Texas Society of Hospital Pharmacists played an active roll in providing a week of education and entertainment at the University of Texas, Austin. Meetings were held during the week of June 18 and institute enrollees were accommodated on the campus. Also contributing to the success of the Institute were Dean Henry Burlage and Mr. Joe Arnett of the University of Texas School of Pharmacy. The Texas Society is headed by Mr. Fred Borth, Seton Hospital, Austin. Others assisting with local arrangements included Mr. Charles Henry, Baylor University Hospital, Dallas; Mr. Cedric M. Jeffers, Scott and White Hospitals, Temple; Miss Louise Pope, University of Arkansas Hospital, Little Rock, Ark.; Miss Adela Schneider, Southern Pacific Hospital, Houston; and Mr. Kenneth Tieman, Student Health Center, University of Texas, Austin.

An outstanding figure at the Texas Institute was Mr. Leo Godley, who also assisted in planning the program. Having the facility for combining entertainment and instruction, Mr. Godley provided effective presentations in the sessions on "Working with Others," and in directing a mock committee meeting of the Pharmacy and Therapeutics Committee. In each instance, other members attending the institute participated, showing the advantages of group activity in the presentation of topics. Other outstanding features of the program included especially the papers on effective communications, handling investigational drugs, and the workshop sessions.

The Texas Society also entertained with a boat ride on the Colorado River and a barbecue which proved most successful.

Enrollees at the Institute in Austin, Texas

Chicago Institute

Facilities at the University of Chicago along with the Pharmacy Department at the University of Chicago Clinics again provided a unique setup for the Chicago Institute held during the week of August 20. Because of the popularity of this particular site and facilities for a meeting of this type, it was necessary to limit the attendance and the sponsoring organizations found it impossible to accept all applicants.

Members of the staff at the University of Chicago Clinics, headed by Chief Pharmacist Peter Solyom, contributed immeasurably to the success of the institute. The enrollees were housed at Burton-Judson Hall with dining facilities and meeting rooms in adjacent buildings.

Sessions on the work of the Pharmacy-Nursing Committee and the Pharmacy and Therapeutics Committee were of special interest to the group. A day devoted to the preparation and packaging of small volume sterile solutions was also a highlight of the meeting. Of great interest was a demonstration on the preparation of small volume sterile solutions by Sister Mary Florentine, Mount Carmel Hospital, Columbus, Ohio; and a discussion on "Controls in a Sterile Solutions Program" by Miss Irene Olynyk who has recently completed a study of parenteral solutions.

A session on radioisotopes held at the University of Chicago Clinics demonstrated actual clinical procedures as well as technics for handling radioactive drugs. Participants included the clinicians and members of the pharmacy staff. Also Dr. John Christian of the Purdue University School of Pharmacy spoke on the trends in this field and the implications for pharmacists, particularly those practicing in hospitals.

An evening session in the form of an open discussion was moderated by Mr. Grover C. Bowles, Baptist Memorial Hospital, Memphis, Tenn.

Members of the Illinois Chapter of the ASHP assisted in local arrangements and members of the institute had the opportunity to tour Chicago on Wednesday night.

Hospital Statistics Published

The American Hospital Association has published the annual hospital statistics in the August 1 (Part II) issue of *Hospitals*. Known as the *Guide Issue*, this number includes a listing of hospitals accepted for listing by the American Hospital Association, along with statistics on patient utilization and hospital operation, a directory of Association services and of organizations and agencies in the hospital and related fields, and reviews of trends and developments in selected areas of hospital activities. These statistics included here are for 1955.

According to the information published, 6,956 hospitals are listed with a total of 1,604,408 beds. The average daily census was 1,363,024. The average patient stay in the short-term general hospital was 7.8 days, the same as in 1954.

The nonprofit general hospitals which care for the great majority of the acute, short-term cases in the nation spent an average of $24.15 a day for the care of each patient. This represents an increase of $1.37 over 1954. In these hospitals the average expenditure on each patient in 1955 was $181 compared with $171 in 1954.

Of interest to those practicing pharmacy is the fact that 38 percent of all U. S. hospitals had less than 50 beds; 22 percent had from 50 to 99 beds; 26 percent had between 100 and 299 beds; and 14 percent had 300 beds or more.

In addition to the general statistics, hospital pharmacists will want to note the following relating to pharmacy practice in hospitals:

Of a total of 5,237 short-term general and special hospitals, 3,720 reported having a pharmacy department. The statistics are further divided to show the number of hospitals having a pharmacy according to bed size and according to type of hospital.

From these statistics it is noted that 100 percent of the hospitals over 500 beds reported a pharmacy department; 99.2 percent in the 300-499 category; 97.2 percent of those having 200-299 beds, 83.6 percent having 100-199 beds; 50.5 percent in the 50-99 bed category; 29.2 percent having 25-49 beds; and 19.8 percent of less than 25 beds.

The 5,237 hospitals reported employment of 3,945 (3,218 full-time and 727 part-time) pharmacists. The same information is tabulated by state, that is, the number of full-time and part-time pharmacists employed in hospitals in each state is given. Also, the number of pharmacists employed according to type of service is shown.

therapeutic TRENDS

edited by WILLIAM JOHNSON

Mephenesin—Drug Antagonist in Strychnine Poisoning

The treatment of a case of accidental strychnine poisoning in a two year old child is reported by Jacoby and Boyle in *J. Lab. & Clin. Med. 48*:270 (Aug.) 1956. Use of mephenesin in this instance was based upon laboratory evidence that this drug antagonizes the effects of strychnine in animals.

In the case cited, the history and physical findings were typical of strychnine poisoning. The effectiveness and speed of action of mephenesin were exceedingly satisfactory. Following the injection, the convulsions and the opisthotonos disappeared, while at the same time there was no decrease in the respiratory activity of the patient. On the contrary respiration and oxygenation improved as the spasm of the respiratory muscles disappeared. Twitching and convulsions did not reappear even during the stimulation of gastric lavage, catheterization, and venipuncture. Barbiturates were used to produce mild sedation during the period of hyperexcitability but were of no immediate value in the treatment of the acute convulsive episode. The technique used for the administration of mephenesin is that of very slow intravenous injection, so that the effect of the drug is observable and an overdose is avoided. Further investigation of mephenesin as an anticonvulsant, particularly following strychnine poisoning, is recommended by these workers.

Anchol—A Synthetic Choleretic

Anchol (SC1674) is Y-oxy-Y fluoranthenebutyric acid. It was given to 34 patients with biliary disease and a study was made of these cases over a period of three years. The changes brought about in the physical properties of bile after the administration of anchol indicate that this drug should be useful in the treatment of biliary disease. McGowan's report in *Surg. Gynec. Obst. 103*:163 (August) 1956 is concerned mainly with the results of a study of the bile of 13 patients who had T-tube drainage of the common bile duct for long periods of time. The oral medial lethal dose of anchol in mice is 1,160 mg./Kg. and in rats 2,500 mg./Kg. of body weight. These ranges of toxicity indicate a high index of therapeutic safety. The usual dosage schedule employed was one 250 mg. tablet 4 times daily. The bile changed from its original color (which ranged from clear, canary yellow to a muddy, thin bile containing precipitates) to a brilliant deep green and the sediment disappeared. Motile bacteria were reduced in number or were absent. There was a definite detergent action noted in all cases. This was evidenced by the clean T-tubes free from sediment, contrary to conditions noted otherwise when the T-tubes are usually covered with inspissated bilirubin. No untoward results were noted in any of the 34 patients receiving anchol.

Absorbable Hemostatic Sponges—Complications From Their Use

A review of the literature on absorbable hemostatic sponges by Lindstrom has revealed that there are wide discrepancies in the data regarding absorption time and tissue reaction. The subject of this study are those absorbable hemostatic sponges made of fibrin, oxidized cellulose, and gelatin, and the results of this study are published in *Arch. Surg. 73*:133 (July) 1956. A number of observations of wound infections following implantation of sponges have been accumulated both in experimental and in clinical surgery. Further experimental studies regarding absorption and tissue response are presented and include some unfavorable observations. Two cases of brain abscess and one of an epileptogenic focus following implantation of gelatin are reported. Methods are suggested to reduce the complications that at times occur in connection with the use of absorbable sponges.

JB251 For Relief of Bronchial Asthma

JB251 is *alpha* [(alpha-methyl-3,4-methylenedioxyphenylethylamino) methyl] protocatechuylalcohol hydrochloride. Its clinical trial is described by Itkin *et al* in *J. Allergy* 27:359 (July) 1956 for treatment of patients with bronchial asthma. It is effective orally and also in the form of a nebulized

solution. No serious effects have been found in 126 patients receiving JB251. One hundred and eleven out of 126 patients obtained at least partial relief. JB251 in 1:200 solution was effective in relieving the attacks of as many patients as was epinephrine 1:100, and accounted for less side reactions than epinephrine. Four mg. tablets of JB251 were effective in more patients than were 50 mg. tablets of ephedrine hydrochloride. JB251 appears to be effective in a group of patients who do not respond to large doses of ephedrine. JB251 was provided for this study by Lakeside Laboratories.

Tremorine—A Tremor Inducing Drug

During the course of screening drugs in mice, it was observed that 1,4-dipyrrolidino-2-butyne (Tremorine) produces a profound tremor of the head and limbs lasting for more than one hour. In addition, the animals move about slowly, show rigidity, and are less active. Parasympathetic stimulation is marked and characterized by profuse salivation, miosis, diarrhea, and bradycardia. A profound fall in body temperature also occurs. In *Science* 124:79 (July 13) 1956, Everett *et al* (Department of Pharmacology, Abbott Laboratories) state that in their experience sustained tremor is a rare phenomenon of drug action. Because of the possible usefulness of such a drug in testing for anti-Parkinson agents, further studies have been carried out. Anti-Parkinson drugs controlled the tremor and cholinergic effects completely and were effective either given prior to Tremorine or after full effects were evident. Methantheline will control the parasympathomimetic effects but does not affect the tremor; thus the central and peripheral actions of the drug can be separated. Tremorine in dogs has effects similar to those observed in mice. In the monkey, tremor is not as marked as it is in dogs, but it is easily seen and the Parkinson-like facial changes are very striking. Twenty analogs of Tremorine were tested. None produced tremor which suggests a high degree of chemical specificity for the production of these effects. The site of action of Tremorine is under investigation.

Bynamid—An Antifungal Agent

A new group of derivatives of salicylamide has become available and examined for possible activity against dermatophytes. Accordingly, a study of this group of compounds for comparative antifungal activity is under way. One of the most active compounds of this group is N-butyl-3-phenyl salicylamide (Bynamid). The object of this study is to evaluate the antifungal and antibacterial properties of Bynamid by *in vitro* methods.

Hok *et al* report in *Antibiot. Chemother.* 6:456 (July) 1956 that from the practical standpoint, the properties of this compound warrant clinical trials as a topical agent in the therapy of the common superficial fungus infections caused by dermatophytes. Bynamid was found to be fungistatic *in vitro* in low concentrations for representative species of three genera of this group of fungi which are found in infections of the scalp, smooth skin, and extremities of the body. Fungicidal activity against these organisms was also revealed in preliminary experiments. When compared with other antifungal agents commonly used in treating such infections, it appeared to be more active. Evidence was obtained indicating that *T. mentagrophytes* and *M. audouini* did not develop resistance to this agent when transferred serially in the presence of maximum tolerated concentrations. The group of salicylamide derivatives used in this study were synthesized by Sahyun Laboratories and were made available for study by Cutter Laboratories.

Pipendyl Methane—An Antitussive

Pipendyl methane is a di-thienyl derivative of diphemanil methylsulfate. It is a non-narcotic compound which has shown a relatively low toxicity and high antitussive activity in animal experimentation. In clinical evaluation, the therapeutic effect was observed in 16 patients and its side effects in 28 patients. In *N. Y. State J. Med.* 56:1773 (June 1) 1956, Nair and Haar report that the antitussive activity of pipendyl methane compares favorably with codeine (30 mg. pipendyl methane was found to be as effective as 30 mg. of codeine). Of the 16 patients requiring an antitussive, three obtained excellent results, seven good effects, three moderate improvement, and three no benefit from the drug under conditions used in this study. The most effective single dose was found to be 30 mg. and the action of the drug lasted for a maximum of six hours. No withdrawal symptoms or addictions were noticed in any of the subjects. The best results were obtained in patients having large amounts of sputum which indicates that the use of pipendyl methane in cases of bronchiectasis and pulmonary diseases with suppuration may give promising results. Of the patients who were observed for toxicity there were no significant changes in urinalyses, red cell counts, blood pressure, or thymol turbidity tests. All patients were remarkably free from gastrointestinal or nervous symptoms. The material for this study was supplied by the Schering Corporation under their code name Sch2747.

timely drugs

Consol and Consolets

. . . as a thixotropic suspension and troches, have been announced by the Wm. S. Merrell Co. Consol is a new antitussive-expectorant containing narcotine, a potent nontoxic antitussive. Narcotine is related to papaverine, not morphine or codeine. Unlike codeine, narcotine is remarkably free from side effects. Consol is indicated for patients suffering from productive or nonproductive coughs, for allergic cough, and the relief of cough due to simple irritants and colds.

The dosage of Consol is one to two teaspoonfuls every three hours as needed for cough for adults and children over 12 years. Children 3 to 12 years receive one-half to one teaspoonful every three hours; children under 3 years, one-half teaspoonful every three hours. For adults and children over 12 years, the dosage of Consolets is one or two troches every three to four hours.

Consol is available as a thixotropic suspension containing in each 5 ml.: narcotine 5 mg.; terpin hydrate 50 mg.; Decapryn (doxylamine, Merrell) succinate 3 mg.; with mild menthol and 1.3 percent alcohol. Consolets, cherry-flavored throat troches, are also available. Each Consolet contains the same medicaments present in each 5 ml. of Consol.

Consol is supplied in 4 and 16 ounce bottles; Consolets are packaged in boxes of 24 troches.

Di-SoSul

. . . is the tradename of a one percent solution of dioctyl sodium sulfosuccinate. Di-SoSul is an emulsifying and wetting agent which is used in the treatment of constipation. It is indicated especially to break up fecal impactions, and generally to loosen hard stools. It is useful in the treatment of patients who are confined to bed for long periods of time, such as patients with poliomyelitis. Di-SoSul is also useful in the treatment of megacolon.

Di-SoSul may be given orally in milk or fruit juice to infants, children and adults in divided daily dosage ranging from 0.5 to 6 ml. For rectal administration, the one percent solution of Di-SoSul is diluted with nine parts of water or isotonic saline and used as a retention enema.

Di-SoSul is available from Drug Industries Company of Detroit in plastic bottles containing one quart of the solution.

Meratran

. . . tablets, a product of Wm. S. Merrell, is now marketed as a 2.5 mg. tablet in addition to the pink 1 mg. tablets previously available. Meratran (pipradrol) hydrochloride is used for emotional depression and functioning fatigue. The recommended dosage is 5 to 7.5 mg. daily, according to the patient's needs. Should sleep be disturbed on 7.5 mg. daily, then the dose should be reduced to 2.5 mg. at breakfast and at noon.

Meratran is supplied as a yellow tablet in the 2.5 mg. strength, in bottles of 100 tablets.

Metamine Sustained Tablets

. . . providing simplified, enduring protection from angina pectoris, is marketed by Thos. Leeming & Co., Inc. A long-acting nitrate, it effectively prevents attacks or greatly reduces their frequency and severity, without the side effects, toxic reactions, and tolerance observed with other cardiac nitrates. The usual oral dosage of Metamine (triethanolamine trinitrate biphosphate, Leeming) Sustained tablets is 10 mg. on arising and 10 mg. before the evening meal. Available in bottles of 50, each sustained-release tablet contains 10 mg. of Metamine.

Mysteclin Suspension

. . . for broad spectrum antibacterial therapy, has been released by E. R. Squibb & Sons. This fruit-flavored, corn oil suspension containing Steclin (tetracycline, Squibb) and Mycostatin (nystatin, Squibb) not only provides broad spectrum antibiotic therapy, but also acts to prevent fungal superinfection which may occur as a result of therapy with broad spectrum antibiotics. An overgrowth of Candida albicans (monilia) in the intestinal tract may be responsible for some of the diarrhea and anal pruritus associated with such therapy. Mysteclin suspension is well absorbed, producing high blood and urinary levels in a short period of time, and it diffuses readily into tissues and body fluids. It is indicated for the many common infections which respond to tetracycline therapy (those caused by most pathogenic bacteria, certain large viruses, certain rickettsias, or Endamoeba histolytica).

The dosage of Mysteclin suspension should be based on its Steclin content. For infants and children, the daily dosage should supply 10 to 20 mg. of tetracycline per pound of body weight, in divided doses, depending upon the type and severity of the infection. The minimum dosage for adults is two teaspoonfuls of the suspension four times a day, supplying one gram of tetracycline each day in divided doses. Treatment for all patients should generally continue for 24 to 48 hours after symptoms and fever subside.

Mysteclin suspension is supplied in two ounce bottles, stable for 18 months at room temperature. Each 5 ml. teaspoonful contains the equivalent of 125 mg. of tetracycline hydrochloride and 125,000 units of nystatin.

Mytelase

. . . a cholinergic used for the treatment of myasthenia gravis, is a product of Winthrop Laboratories. It formerly was known as Mysuran. The drug has a potent anticholinesterase activity and a relatively prolonged duration of action which effectively controls the debilitating symptoms of myasthenia gravis. Because its action is longer, administration of Mytelase is necessary only every three or four hours, depending upon the clinical response. Usually, medication is not required throughout the night so that the patient may sleep uninterruptedly. A narrow margin exists between the first appearance of side effects and serious toxic effects. Treatment of a cholinergic crisis involves the immediate cessation of all cholinergic medication and the intravenous administration of 1 mg. of atropine, to be repeated if necessary. Routine administration of atropine with Mytelase is contraindicated since belladonna derivatives may mask signs of overdosage.

For the myasthenic patient of average severity, from 5 to 25 mg. of Mytelase (ambenonium, Winthrop) administered three or four times daily is an effective dose. Some patients benefit with as little as 5 mg. per dose, while others require as much as from 50 to 75 mg. per dose.

Mytelase is supplied as scored tablets of 10 mg. and 25 mg., in bottles of 100.

Neomycin-Mycostatin Tablets

. . . a product of E. R. Squibb, is indicated preoperatively to suppress enteric bacterial and fungal organisms in patients undergoing gastrointestinal surgery. The presence of intestinal obstruction contraindicates the use of oral medication. The preparation not only provides protection against the bacteria responsible for many intestinal disorders, but also is effective in controlling the overgrowth of fungi, particularly Candida albicans (monilia).

The minimum effective dosage for Neomycin-Mycostatin tablets provides 4.5 grams neomycin and 1,125,000 units Mycostatin (nystatin, Squibb) daily, given as follows: three tablets three times per day, for a period of 24 to 72 hours prior to surgery.

Neomycin - Mycostatin tablets, each containing 0.5 Gm. neomycin sulfate (equivalent to 0.35 Gm. neomycin base) and 125,000 units Mycostatin, are supplied in bottles of 20 and 100.

Nilevar

. . . an orally effective steriod agent for the promotion of protein anabolism is now available from G. D. Searle & Co. This drug, 17 *a*-ethyl-17-hydroxynorandrostenone, is indicated in conditions and under circumstances in which protein anabolism is desired, such as preparation for elective surgery, recovery from surgery, serious trauma or burns, recovery from serious illness such as anterior poliomyelitis, care of premature infants, and nutritional care in chronic illness such as tuberculosis or carcinomatosis. Nilevar (norethandrolone, Searle) is contraindicated in prostatic carcinoma because it exerts a slight androgenic effect. Withdrawal bleeding may occur on high dosages if therapy is terminated abruptly. The drug should be used with caution in the presence of severe liver damage or hepatic metastases.

For an immediately discernible effect the suggested daily dose of Nilevar for adults is 30 to 50 mg. As much as 100 mg. may be given if necessary, although mild androgenic effects may be manifested at this high level of dosage. For children and infants the suggested dosage is 1 to 1.5 mg. daily per kilogram of body weight.

Nilevar is packaged as uncoated, unscored tablets of 10 mg. each in bottles of 50.

Otamylon with Hydrocortisone

. . . ear drops for otitis externa, furunculosis, and otitis media with perforated drum, is supplied by Winthrop Laboratories for topical chemotherapy and contains a combination of anti-allergic, anti-inflammatory, anti-infectious, anesthetic, hygroscopic and soothing drugs to promote healing of infections of the ear. When prepared for dispensing these drops are a clear, odorless, sterile, amber, viscid liquid containing 5 percent Sulfamylon (mafenide, Winthrop) hydrochloride, 5 percent benzocaine, and 0.02 percent hydrocortisone in anhydrous glycol. After gently cleansing and drying the ear canal, Otamylon with Hydrocortisone (2 or 3 drops or moistened wick) is applied three or four times daily. It is supplied as a 15 ml. combination package with dropper, of Otamylon and Hydrocortisone solution in separate bottles, readily mixed prior to dispensing.

Paracodin

. . . bitartrate, an effective analgesic and antitussive, has been introduced by the Bilhuber-Knoll Corp. Paracodin, a brand of dihydrocodeine, is a powerful analgesic distinguished from other opiate derivatives by a relative freedom from respiratory depression and other undesirable side effects such as nausea and dizziness. It is indicated in acute and chronic pain requiring opiates for relief; as preoperative medication in conjunction with other commonly used drugs; in obstetrics for pre and post partum; and for the control of cough.

In acute and chronic pain, a dose of 30 mg., generally equivalent to 10 mg. of morphine, is administered subcutaneously. As an antitussive, it acts quickly and smoothly in a dose of 10 to 20 mg. given orally. It is useful in irritating cough to allay exhausting, unproductive cough associated with upper respiratory infections.

Paracodin, which is subject to Federal narcotic regulations, may be habit forming and should be administered with the same precautions observed with other opiates. It is available as 1 ml. ampuls containing 30 mg. of Paracodin bitartrate, in boxes of 6 and 100 ampuls; and as oral tablets of 10 mg. in bottles of 100.

Robalate Liquid

. . . an antacid indicated in the medical treatment of peptic ulcer, has been released by A. H. Robins Co., Inc. It provides both prompt initial acid-neutralizing action and prolonged effect. It promotes healing of ulcer lesions through 'localized' demulcent action at the ulcer site, as well as by its antacid efficiency. The protective mucilaginous coating in Robalate (dihydroxy aluminum aminoacetate, Robins) Liquid helps shield ulcerated areas from further acid-pepsin erosion and irritation. The dosage is one or two teaspoonfuls after meals and at bedtime.

CURRENT LITERATURE

edited by SISTER MARY ETHELDREDA, *St. Mary's Hospital, Brooklyn, N.Y.*

American Professional Pharmacist

SWARTS, WILLIAM B. AND STEELE, FRANK J.: Hospital Hydrocortisone Preparations *Am. Profess. Pharmacist 22*:628 (July) 1956.

A dermatologist and hospital pharmacist suggest formulations for prolonged treatment of infantile eczema which reduces costs to those patients in the lower income groups.

VANCE, JOE: Smaller Hospitals and Pharmacy Service. *Am. Profess. Pharmacist 22*:712 (Aug.) 1956.

An administrator who has been a pharmacist suggests the need for broad planning at top levels in hospitals with less than 100 beds.

Hospital Management

MORAVEC, DANNIEL F.: Standardization of Drug Usage, *Hosp. Management 82*:86 (Aug.) 1956.

The first part of a two-part article presenting points to be well considered and planned before a drug standardization is attempted.

MORAVEC, DANIEL F.: Standardization of Drug Usage, *Hosp. Management 82*:102 (Sept.) 1956.

In this second part of a two-point article, the importance of the Pharmacy and Therapeutics Committee, the Formulary System and Stock Control System are emphasized.

Hospital Progress

TEPLITSKY, BENJAMIN: The Use of Investigational Drugs in Hospitals, *Hosp. Progress 37*:76 (Aug.) 1956.

This account of a recent inquiry reveals the present status of investigational drugs; current practice and recommendations.

KUNKEL, FRANK E.: How a Small Hospital Can Utilize a Local Pharmacy to Advantage, *Hosp. Progress 37*:78 (June) 1956.

A factual report of what one small hospital and local pharmacy are doing to provide patients with good pharmacy service at reasonable cost.

Modern Hospital

REPORT: A Formulary Is Good for the Hospital When the Hospital's Formulary is Good, *Modern Hosp. 87*:61 (Sept.) 1956.

A transcribed report of a round table discussion on the hospital formulary as viewed by proponents and critics of the system. As pointed out, the formulary simplifies purchasing, inventory and distribution procedures without restricting free choice in any serious way. Critics on the panel minimized the economies inherent in the formulary system and pointed with alarm to restrictive regulations under formulary rules.

Philadelphia Medicine

ARCHAMBAULT, GEORGE F.: Hospital Pharmacy, *Philadelphia Medicine 51*:1523 (June 22) 1956.

A brief review of the current status of hospital pharmacy practice as presented at the Rutgers Fifth Annual Pharmaceutical Conference, May 9, 1956.

The Hospital Pharmacist (Canada)

STAUFFER, I. E. AND FULLER, H. J.: What the Hospital Pharmacy Survey Means to You, *Hosp. Pharm. (Canada) 9*:195 (July-Aug.) 1956.

Interpretations of the results of the Fuller-Stauffer survey on hospital pharmacy services. Reported in the *Bulletin of the Ontario College of Pharmacy 5* (Nos. 1, 2 and 3, 1956). Results were based on a questionnaire response of 51.8 perecent of the hospitals in Canada of 50 beds or more.

MATTHEWS, A. W.: A Glimpse at World-Wide Pharmacy, *Hosp. Pharm. (Canada) 9*:198 (July-Aug.) 1956.

A review of the meeting of the International Pharmaceutical Federation held in London in September, 1955. Covers the role of the F.I.P. and the importance of closer liaison between the practitioners in the various specialties in pharmacy.

GOODLAND, KATHERINE: Manufacturing In a Hospital Pharmacy, *Hosp. Pharm. (Canada) 9*:208 (July-Aug.) 1956.

A student's thesis summarizing the advantages of manufacturing in the hospital pharmacy.

SISTER M. GONZALES: Couriers Speed Pharmacy Service, *Hosp. Pharm. (Canada) 9*:212 (July-Aug.) 1956.

Describes a procedure for handling drug deliveries in a most efficient way.

J. Am. Pharm. Assoc., Pract. Pharm. Ed.

WHITNEY, JOHN M.: Pharmacists in Civil Defense, *J. Am. Pharm. Assoc., Pract. Pharm. Ed. 17*:526 (Aug.) 1956.

Discusses the responsibilities of pharmacists and the role of the American Pharmaceutical Association in Civil Defense. Of particular note to hospital pharmacists is a section on "Hospital Requirements."

Public Pharmacist

(Quarterly Journal of the Guild of Public Pharmacists, Great Britain)

BRADLEY, T.: Radio-isotopes in Pharmaceutical Practice, *Public Pharmacist 13*:137 (July) 1956.

A survey of the basic concepts of radioactivity and of the techniques involved in dispensing radioisotopes.

ASHP affiliates

Philadelphia Hospital Pharmacists

The Philadelphia Hospital Pharmacists' Association held its annual dinner meeting on June 2 at the Adelphia Hotel in Philadelphia. The guest speaker was Dr. Ivor Griffith, President of the Philadelphia College of Pharmacy. He chose as his subject "Then and Now in Hospital Pharmacy." Of particular note are the citations for honorary membership in the Philadelphia group which were presented at the dinner. Such awards were presented to Mr. Arthur A. Clymer of the Smith, Kline and French Laboratories; Dr. E. Fullerton Cook, formerly Chairman of the Committee on Revision of the United States Pharmacopeia, Dr. Ivor Griffith, President of the Philadelphia College of Pharmacy and Science; Mr. Edwin H. Kercher, formerly Chief Pharmacist at the Osteopathic Hospital in Philadelphia; Dr. W. Wilson McNeary, formerly Chief Pharmacist to the Hospital of the Graduate School of Medicine of the University of Pennsylvania; and Mrs. Edythe Weston Parry, a hospital pharmacist in the Philadelphia area for 52 years.

Awards were also presented to the past-presidents of the Philadelphia Association including Quintus Hoch, Thomas Hynes, William Hindman, William Levin, J. Robert Cathcart, Benjamin Wexlar, and Basil Ketcham.

The program for the meeting included a history of the association along with a list of the charter members. Mr. Herbert L. Flack, Director of Pharmacy Services at Jefferson Medical College Hospital, is currently serving as President of the Philadelphia Hospital Pharmacists' Association.

Establishment of an "Education Fund" was also announced at the June meeting of the Philadelphia Hospital Pharmacists' Association. The primary function of this Fund has been outlined as follows:

1. To stimulate and encourage interest among undergraduate students in the Philadelphia College of Pharmacy and Science and the Temple University School of Pharmacy to enter the specialized field of hospital pharmacy.

2. To assist with the financial needs of graduate pharmacists training in the graduate programs in hospital pharmacy administration as offered by the Philadelphia College of Pharmacy and Science and the Temple University School of Pharmacy, AND in the post-graduate approved internship and residency programs in Pharmacy as offered by member hospitals of this Association.

3. To sponsor formal training programs, when needed, in which pharmacists in member hospitals might participate and from which they might benefit.

An Education Fund Committee will be established with a rotating membership, which will be responsible to the Association's Executive Committee but will work with a high degree of independence.

In order to establish this Fund, some 175 companies, comprising a major number of pharmaceutical manufacturers and hospital pharmacy suppliers were contacted in the name of this Association and asked to support the Fund. Contributions were to be acknowledged as follows:

1. Fellowship or Grants for specific post-graduate or other educational efforts, as made available to member hospitals.

2. Senior Sponsor, a contribution of $250 or more for the general Education Fund.

3. General Sponsor, a contribution of $100 or more for the general Education Fund.

4. Patron, a contribution of $50 or more for the general Education Fund.

5. Subscriber, a contribution of $25 or more for the general Education Fund.

Northern California Society

The Northern California Society of Hospital Pharmacists met at the University of California Medical Center in San Francisco on June 12. Guests of the Society included members of the Northern California Branch of the American Pharmaceutical Association. The meeting was in charge of President Marie Kuck.

The principal speaker was introduced by the program chairman, Al Seubert. The talk, on "Newer Hormones and Their Uses," was presented by Dr. Peter Forsham, Associate Professor of Medicine and Pediatrics and Director of the Metabolic Unit at the University of California School of Medicine. Dr. Forsham discussed those drugs in the hormone field as applied to medicine and surgery, namely the steroids, corticotropins, thyroid preparations and oral "insulin-like" acting drugs. The lecture was supplemented with slides.

During the meeting Mr. Eric Owyang welcomed the members and guests on behalf of the pharmacy staff and discussed the functions of the various units. He also invited those in attendance to an open house at the close of the meeting.

President Kuck introduced Mr. Claude Busick, immediate past-president of the National Society, who spoke on the A.Ph.A. building program at National Headquarters and urged all to contribute to this worthy project. Dean Troy Daniels of the School of Pharmacy, also spoke on the need for expanding facilities at the Washington Headquarters.

At the July meeting of the Northern California Society, Mr. Al Seubert reported on a recent conference called by the California Hospital Association to consider narcotic and pharmacy problems. Both he and President Marie Kuck attended as representatives of the Northern

California Society. Discussions were concerned with the role of the intern and resident in ordering narcotics and other drugs in the course of his usual hospital duties, the discrepancy between the definition of a prescription as written in the law and the usual charted order for the hospital bed patient, the status of the nursing home, and the purchase of drugs other than hypnotics and narcotics. The members of the conference generally agreed that hospitals without licensed pharmacies should not be permitted to purchase dangerous drugs, other than hypnotics and narcotics as the law now stands, but that interns and residents should have the right to prescribe narcotics under appropriate safeguard. It was recommended that Senate and Assembly Committees of the State Legislature be informed of the opinions of the conference pending possible changes in the laws at the next Legislative Session.

Plans were also announced for the two day Seminar which is scheduled in October. Mr. Charles Bertrand is Chairman of the committee in charge of the Seminar.

Miss Clara Henry, Chairman of the ASHP Committee on Economic and Household Poisons, asked that members representing hospitals in the area keep a record of all emergency admissions for poisonings from June until September 15, recording the nature of the poison, age of child, treatment given, length of stay in hospital, and outcome.

The program at the July meeting included an illustrated travel talk on Europe by Dr. Gunther Nagel, Chief of Surgery at Children's Hospital in San Francisco. The meeting was held on July 10 at the Children's Hospital in San Francisco.

Tennessee Society

The Tennessee Society of Hospital Pharmacists has recently been reorganized and Mr. Jewell Harper of the Veterans Administration Hospital in Nashville served as Chairman of the Committee. Officers* have recently been elected by mail ballot with the following results: *President,* Grover C. Bowles, Baptist Memorial Hospital, Memphis; *Vice-President,* Joe Sykes, John Gaston Hospital, Memphis; *Secretary,* Violet Fuson, St. Thomas Hospital, Nashville; and *Treasurer,* Jane Bratton, St. Thomas Hospital, Nashville, Tenn.

*New officers as listed here *not* included in green sheets of July-August issue of THE BULLETIN.

Jacksonville Hospital Pharmacists

A group of hospital pharmacists from the Northeast Florida area has organized a chapter and plans are being made to affiliate with the national organization. In accordance with discussions at the first meeting, the purpose of this association will be "The Advancement of the Profession of Hospital Pharmacy and Improvement of Pharmaceutical Service in the Interest of Better Patient Care in Hospitals." Mrs. Jean Poucher, Chief Pharmacist at St. Vincent's Hospital in Jacksonville, has been named President of the newly organized group. Other officers are *Vice-President,* Ralph C. Tolar, Duval Medical Center, Jacksonville; and *Secretary-Treasurer,* Charles Williamson, Assistant Chief Pharmacist at St. Luke's Hospital, Jacksonville. Standing committees have been appointed and the meeting date has been set for the first Thursday of each month.

Nebraska Society

Officers* of the Nebraska Society of Hospital Pharmacists elected to serve during the coming year are as follows: *President,* Gavin L. Muirhead, Lincoln General Hospital, Lincoln; *Vice-President,* (position unfilled); *Secretary,* Frank J. Franco, Immanuel Hospital, Omaha; and *Treasurer,* Lillian Dorsey, Methodist Hospital, Omaha.

*New officers as listed here *not* included in green sheets of July-August issue of THE BULLETIN.

Northeastern New York Society

The Northeasten New York Society of Hospital Pharmacists met on Thursday, June 14, at the Veterans Administration Hospital in Albany, New York. A series of selected short films on surgical procedures from the "Billy Burke Medical Film Library," was shown through the courtesy of E. R. Squibb & Son.

During the business session, the following officers were elected for the coming year: *President,* Louis P. Jeffrey, Chief Pharmacist, Albany Hospital, Albany; *Vice-President,* Josephine Stancampiano, Amsterdam City Hospital, Amsterdam; *Treasurer,* Violet Spaulding, Memorial Hospital, Albany; *Secretary,* Virginia McBride, St. Peter's Hospital, Albany. The President, Mr. Jeffrey, appointed Mr. Fay Peck, Assistant Chief Pharmacist at the Albany Hospital as Program Chairman for the year.

Following the business session and program, members attending the meeting were invited to tour the Veterans Administration Hospital Pharmacy and refreshments were served.

New officers of the Northeastern New York Society of Hospital Pharmacists. LEFT TO RIGHT: *Mrs. Virginia McBride, Secretary, Mr. Louis P. Jeffrey, President, Miss Josephine Stancampiano, Vice-President, and Mrs. Violet Spaulding, Treasurer.*

as the president sees it

PAUL PARKER

American Pharmaceutical Association, Washington, D. C.

How easy it could be to accomplish five years' work in just a few months. We're talking, of course, about increasing membership in the ASHP. The only requirement is that each member make every opportunity count. The job to be done in each state is indicated by the accompanying chart.

You will note that most states have increased their percentage membership in the past five years. In several instances the increase is in direct proportion to the activity of the affiliated chapter in that area. This indicates that active members obtain more active members and more members make more activity.

Miss Adela Schneider is chairman of the Committee on Membership of the ASHP for the current year. She has corresponded with the Secretary of each affiliated chapter to obtain their cooperation in organizing membership campaigns, but those who are expected to accomplish the results are the individual members. We expect that each of you will obtain at least one additional member.

Actually, in many instances it is only a matter of inviting another hospital pharmacist to become a member. They are frequently anxious to join. In other instances you need only explain that becoming a member makes one part of a group dedicated to providing benefits and protection to the hospitalized patient, to the institution in which he works, to the members of the allied health professions with whom he is associated and to his profession. Last, but by no means least, it brings the inner satisfaction of helping oneself by helping others, for there is considerable prestige attended to being identified as a member of the A.Ph.A. and ASHP. We can surely achieve the expected results if you would only carry an application blank with you at all times and use every opportunity to tell a fellow hospital pharmacist about the satisfactions your membership provides.

Our percentage of membership compared with the potential is now such that every addition is of significance. Let's each give that extra assist which would make our gains by April, 1957 compare with the total of the past five years.

AMERICAN SOCIETY OF HOSPITAL PHARMACISTS

Membership Statistics 1956

	Active Members	Potential Active Members	Percentage Membership in 1956	Percentage Membership in 1951
Ala.	23	49	46%	22%
Ariz.	20	47	42%	29%
Ark.	8	42	16%	11%
Calif.	224	435	51%	47%
Colo.	13	74	17%	18%
Conn.	29	62	46%	25%
Del.	5	11	45%	33%
D. C.	26	51	51%	80%
Fla.	37	97	38%	19%
Ga.	19	82	23%	23%
Idaho	6	14	42%	0%
Ill.	148	270	55%	38%
Ind.	61	94	65%	34%
Iowa	31	87	35%	33%
Kans.	14	60	23%	16%
Ky.	27	59	45%	16%
La.	30	74	40%	49%
Me.	3	22	13%	33%
Md.	59	87	67%	51%
Mass.	77	180	42%	31%
Mich.	93	193	48%	36%
Minn.	37	79	46%	22%
Miss.	11	27	40%	17%
Mo.	74	139	53%	44%
Mont.	7	16	44%	7%
Neb.	21	55	38%	33%
Nev.	2	12	16%	29%
N. H.	7	15	46%	15%
N. J.	76	121	63%	38%
N. M.	5	21	24%	16%
N. Y.	165	536	31%	28%
N. C.	35	75	46%	26%
N. D.	5	12	41%	20%
Ohio	139	192	72%	72%
Okla.	17	45	38%	25%
Ore.	17	33	51%	25%
Penn.	156	246	63%	28%
R. I.	10	31	32%	20%
S. C.	8	36	22%	24%
S. D.	5	21	24%	5%
Tenn.	32	79	40%	33%
Tex.	87	237	36%	21%
Utah	16	22	72%	11%
Vt.	4	9	44%	11%
Va.	35	67	52%	22%
Wash.	61	91	67%	27%
W. Va.	11	22	50%	22%
Wisc.	56	103	54%	39%
Wyo.	2	5	40%	0%

NOTE: Membership figures used above were as of August, 1956 and March, 1951. Potential active membership is based upon figures showing the full time hospital pharmacists per state which appeared in *Hospitals*, August 1, 1956 and June, 1950.

NEWS

Oddis with A.H.A.

Joseph A. Oddis, formerly Chief Pharmacist at the Western Pennsylvania Hospital in Pittsburgh, has accepted the position as staff representative on the Council on Professional Practice of the American Hospital Association. Mr. Oddis, the first pharmacist serving full-time in this capacity at the A.H.A., will work with Dr. Sarah Hardwicke, Secretary of the Council on Professional Practice.

Mr. Oddis is well known to members of the Society having been active in the Western Pennsylvania Society of Hospital Pharmacists, an affiliate of the ASHP. He served two terms as President of the group and was active in organizing the 1955 Seminar on Hospital Pharmacy held in Pittsburgh. He has also served on committees in the national Society.

Prior to accepting the position at Western Pennsylvania Hospital, Mr. Oddis was a Staff Pharmacist and Assistant Chief Pharmacist at Mercy Hospital in Pittsburgh. He served with the 38th General Hospital in Denver, Colorado and Germany during the recent war. He holds a Bachelor of Science degree from Duquesne University School of Pharmacy.

1957 A.Ph.A. and ASHP Conventions

The annual convention of the American Pharmaceutical Association will be held in New York City the week of April 28 to May 3, 1957. Hotel Statler will be headquarters for the convention.

The Annual Meeting of the American Society of Hospital Pharmacists will be held Sunday, Monday, and Tuesday of the same week in April. Members of the Society who wish to present professional or scientific papers at the convention of the ASHP should inform Mr. Grover C. Bowles who is Chairman of the Program Committee of the Society. Mr. Bowles is chief pharmacist at Baptist Memorial Hospital, Memphis, Tennessee. Inquiries may be directed to him at that address.

A.Ph.A. House of Delegates To Meet

In line with the amendment to the by-laws of the American Pharmaceutical Association passed at the Detroit convention last April, the House of Delegates of the Association will hold its first interim meeting in Washington, D.C. on Saturday and Sunday, November 10 and 11, 1956. The Society's official delegate to this meeting will be Mr. Allen Beck, Chief Pharmacist, Indiana Medical Center, Indianapolis, and Past President of the American Society of Hospital Pharmacists. Several other members of the ASHP will also attend and participate in this meeting.

In issuing the call for this meeting, Dr. Troy C. Daniels of San Francisco, Chairman of the House of Delegates, pointed out that this will be the first interim meeting which is not a part of a convention of the A.Ph.A. The House of Delegates, which consists of 171 members representing all of the state pharmaceutical associations, the local branches of the A.Ph.A., national pharmaceutical associations, Sections of the A. Ph.A., and members of the Council and past-presidents of the Association, is the policy-forming body of the American Pharmaceutical Association.

The purpose of the interim meeting is to furnish opportunity for discussion of problems facing the Association and the profession at large at a time when there is no interference with convention activities, thus permitting concentration on the problems before the profession.

Among the topics listed for discussion are the following: proposed federal legislation on the barbiturates (Boggs Bill); action of the National Drug Trade Conference and its Committee on Uniform State Laws on restriction of distribution of drugs; interprofessional relations, notably the physician-owned pharmacy and other problems involving medical and pharmaceutical ethics; rulings of the Food and Drug Administration, notably the transfer of drugs from prescription to over-the-counter status; progress of the Association's building fund and plans for enlarging its facilities to provide for essential services;

the Fourth Pan-American Congress of Pharmacy and Biochemistry; the public relations program now being fostered in cooperation with the Health News Institute; and other current topics.

A.Ph.A. Manual 102

Proprietary Names (Trade Names) of Official Drugs is the title of a new 32-page booklet which has recently been compiled as a special service to the members of the American Pharmaceutical Association. The purpose of the booklet is to assist pharmaceutical educators, drug manufacturers, practicing pharmacists, pharmacy students, and retailers, as well as others of the health professions in identifying drugs official in the *United States Pharmacopeia* XV and the *National Formulary* X by their proprietary or other trade names. A notice in the booklet states: "It is to be understood that compilation of these trademarks herein must not be interpreted as constituting or implying authority to dispense any product other than the one prescribed or ordered under the trademark specified in the prescription or order." Additional copies of the manual may be obtained from the American Pharmaceutical Association, 2215 Constitution Ave. N. W., Washington 7, D. C. Price for single copies is 25 cents; 10 to 99 copies, 15 cents per copy; and 100 or more, 10 cents per copy.

U.S.P. Dermatology Exhibit Honored

At the recent convention of the American Medical Association held in Chicago, a U.S.P. exhibit entitled "U.S.P. XV—Latest Dermatological Preparations" received the second highest award of the exhibits of the Dermatology section at the convention.

A 10-page U.S.P. pamphlet, "Topical Preparations of the United States Pharmacopeia," prepared through the assistance of Drs. Zopf and Blaug, was distributed from the exhibit booth. Members of the Society may receive a copy of this booklet by writing to Mr. Adley Nichols, Secretary, United States Pharmacopeia, 46 Park Avenue, New York 16, New York.

Survey of Hospital Pharmacy in Michigan

The University of Michigan College of Pharmacy has received a grant for a survey of hospitals in the state having less than one hundred beds. The grant of $10,000 is part of a program of "Research and Service in the Utilization of Human Resources," for which $300,000 was recently appropriated by the Michigan legislature.

According to Dean Tom D. Rowe of the University of Michigan College of Pharmacy, the objectives of the survey are to determine:

1. The elements required to render necessary pharmaceutical services and to establish the existing facts concerning such services.

2. The possible role of established retail pharmacies in providing services to small hospitals.

3. How to provide the best pharmaceutical services most efficiently and at the most reasonable cost.

4. How to stimulate institutes, or short refresher courses, for pharmacists and other hospital personnel concerned with pharmacy services.

U.S.P. Exhibit at A.M.A. Convention

Dr. Alex Berman, recently appointed an assistant professor at the University of Michigan College of Pharmacy, will head the Survey. Dr. Berman was formerly a hospital pharmacist and holds a Ph.D. degree in the history of pharmacy from the University of Wisconsin. During the past year he has served as Acting Secretary of the American Institute of the History of Pharmacy, Madison, Wis.

Godley and Barnett to Head ASHP

Leo F. Godley

Charles B. Barnett

Leo F. Godley, Chief Pharmacist at Bronson Methodist Hospital in Kalamazoo, Michigan, has been elected president of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS for the 1957-1958 term. Elected Vice-President is Mr. Charlie B. Barnett, Chief Pharmacist at St. Luke's Hospital in Jacksonville, Florida.

Mr. Godley has been active in the SOCIETY since its organization, having served as Secretary during the 1947-1948 term. He has served on the Policy Committee of the Division of Hospital Pharmacy and as a member of numerous committees. He was Chairman of the SOCIETY's Committee on Program and Public Relations during the past year and has been on the Executive Committee. Mr. Godley has also contributed to the hospital pharmacy literature and has served on the editorial staff of the *Journal of the American Pharmaceutical Association* and THE BULLETIN OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS.

The new Vice-President, Mr. Charlie Barnett, is now President of the Southeastern Society of Hospital Pharmacists. He has been active in the SOCIETY over a period of many years and has served on numerous committees in the national organization.

The Secretary and Treasurer of the SOCIETY are elected for three-year terms. The term of the present Treasurer, Sister Mary Berenice, St. Mary's Hospital, St. Louis, Mo., expires with the 1959 Annual Meeting. The term of the Secretary, Mrs. Gloria N. Francke, 1812 Norway Road, Ann

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REFERENCES

Wilson, J. L. and Dickinson, D. G.: *J.A.M.A. 158*:261 (May 28) 1955.

Spiesman, M. G. and Malow, L.:*Journal Lancet 76*:165 (June) 1956.

Antos, R. J.: *Southwestern Medicine 37*:236 (April) 1956.

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Arbor, Mich., expires at the 1958 Annual Meeting.

The new officers will be installed at the Society's Annual Meeting which will be held in New York City in April, 1957.

The ballots were counted by a Committee of four ASHP members appointed by President Paul Parker, and the results submitted to the Secretary, Gloria N. Francke. Included on the Committee were Mr. Frank Cooper, *Chairman,* George Washington Hospital, Washington, D. C.; Miss Ursula E. Heyer, The Johns Hopkins Hospital, Balitmore, Md.; Miss Mary Ann Magee, The Medical College of Virginia Hospital, Richmond, Va.; and Mr. William H. Briner, Clinical Center, National Institutes of Health, Bethesda, Md.

Bowles Elected to A.Ph.A. Council

Grover C. Bowles, a past president of the American Society of Hospital Pharmacists, has been elected to the Council of the American Pharmaceutical Association for a three year term. Mr. Bowles, a practicing hospital pharmacist, is Chief Pharmacist at Baptist Memorial Hospital in Memphis, Tennessee. Others elected to serve a three year term on the Council are Dr. Roy A. Bowers, Dean of Rutgers College of Pharmacy, Newark, N. J., and Dr. John B. Heinz, Practicing Pharmacist, Salt Lake City, Utah.

Dr. Joseph B. Burt, Dean of the Nebraska College of Pharmacy, Lincoln, has been elected President of the A.Ph.A. Other officers include First Vice-President Leroy A. Weidle, Sr., of St. Louis, Missouri.

The new officers and council members were elected by a mail ballot to members of the Association. They will be installed at the A.Ph.A. Convention scheduled for April 28 - May 3, 1957, in New York City.

Policy Committee Meets

President Paul Parker, Walter M. Fraizier, Evlyn Gray Scott, and Don E. Francke represented the American Society of Hospital Pharmacists at the Policy Committee meeting of the Division of Hospital Pharmacy held in Chicago on August 25 and 26. Other members of the Committee present included Robert P. Fischelis and Glenn L. Jenkins representing the American Pharmaceutical Association; Sister M. Stephanina, representing the Catholic Hospital Association; and Dr. LeRoy Bates of the American Hospital Association. Dr. Bates was present in the absence of Dr. Robert Cadmus who has been a member of the Committee for a number of years.

Among the principal subjects covered at the meeting included the status of the Audit of Pharmaceutical Services in Hospitals which is being carried out under a grant from the Public Health Service, the approval program for internships in hospital pharmacy, the status of the annual institutes and the need for local and regional meetings of this type, publication of a career booklet on hospital pharmacy, and a total public relations program for hospital pharmacy.

Pharmacy Section—Association of Western Hospitals

Officers elected at the 1956 meeting of the Pharmacy Section of the Association of Western Hospitals are: *Chairman*: Richard C. Slanker, 1315 E. Norwood Pl., Alhambra, Calif.; *First Vice-Chairman,* Mary J. Hubbard, 808 E. 25th, Vancouver, Wash.; Second *Vice-Chairman,* Donal W. Thorup, 569 Ninth Ave., Salt Lake City, Utah; *Third Vice-Chairman,* David Axelrod, 2034 W. Earll Dr., Phoenix, Ariz.; *Secretary,* Marie R. Tilley, 731 Cedar St., Apt. D., Santa Monica, Calif.; *Trustee* Charles J. Hagan, 354 12th St., Santa Monica, Calif.; and *Alternate Trustee,* James F. Button, Virginia Mason Hospital 925 Seneca, Seattle, Wash.

Linstead Touring Canada

Sir Hugh Linstead, O.B.E., M.P., noted international pharmacist, is making a month-long speaking tour of Canada beginning October 2. The tour is being made at the invitation of the Canadian Pharmaceutical Association beginning in Toronto, October 2.

Sir Hugh is Secretary of the Pharmaceutical Society of Great Britain and President of the International Pharmaceutical Federation. In Canada he will speak at 18 major centers across the country on national health insurance as it affects the pharmacist. He will be accompanied by John C. Turnbull, Secretary-Manager of the Canadian Pharmaceutical Association.

A Conservative member of the British House of Commons, Sir Hugh has studied closely the experience of pharmacists under Britain's nationalized health plan.

He was named secretary of the British Pharmaceutical Society in 1926 and the same year was involved in negotiations with the government which established supervision of the profession in the Society.

Sir Hugh was knighted by Queen Elizabeth in 1953.

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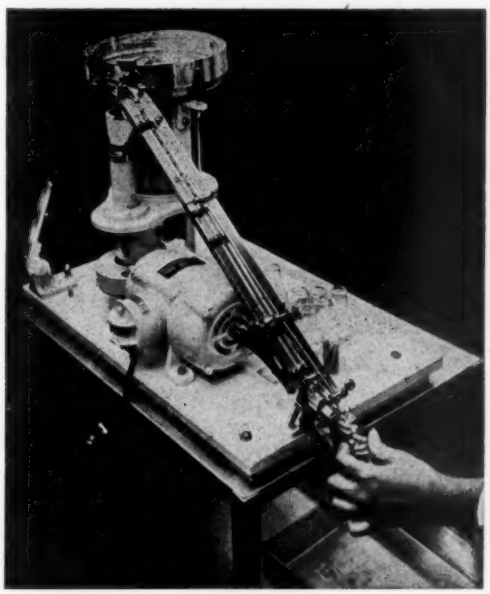

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Burney Appointed Surgeon General, P.H.S.

Dr. Leroy E. Burney has been appointed Surgeon General of the Public Health Service for a four year term. Dr. Burney succeeds Dr. Leonard Scheele who resigned August 1.

Dr. Burney is the eighth person to hold the office of Surgeon General. His entire professional career has been spent in public health activities, beginning with his internship at the U. S. Marine Hospital, Chicago, Illinois, 1930-31. He was State Health Commissioner of Indiana, from 1945 to 1954, on detail from the Public Health Service. At the time of his appointment as Surgeon General, Dr. Burney was Assistant Surgeon General and Deputy Chief of the Bureau of State Services in the Public Health Service.

Dr. Burney is a native of Indiana and holds an M.D. degree from Indiana University School of Medicine and a Masters degree in public health from The Johns Hopkins School of Hygiene and Public Health. He is affiliated with numerous medical and public health organizations.

Dodge Attends Armed Forces Industrial College

Senior Pharmacist Arnold H. Dodge of the United States Public Health Service has been assigned to the Industrial College of the Armed Forces for a 10-month course in mobilization planning. He began this course on August 15. Mr. Dodge is the first PHS officer to receive this course of training.

Mr. Dodge is a career pharmacist in the Public Health Service, having entered the Commissioned Corps from the University of Washington about 12 years ago. For the past year and a half he has been working with Thomas Foster in the Office of Civilian Health Requirements, which is the mobilization planning group on health supplies in the Public Health Service. Prior to this assignment, Mr. Dodge was chief pharmacist at the Public Health Service hospital in San Francisco for four years. He has also served a tour of duty in the Office of Personnel in Headquarters following several years at the Public Health Service Station in San Juan, Puerto Rico.

Elkas Joins U.S.P. Staff

Dr. Robert W. Elkas has been appointed Assistant to the Director of Revision of the U.S.P.

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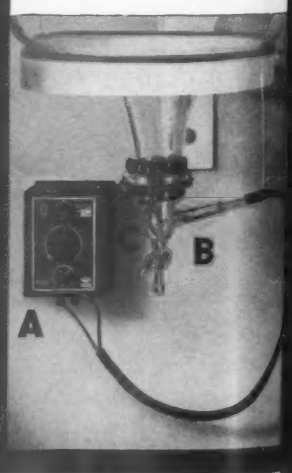

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Dr. Elkas obtained his undergraduate degree in pharmacy from the Massachusetts College of Pharmacy and a Ph.D. in pharmaceutical chemistry from Purdue University. Dr. Elkas will participate in all phases of the revision activities of the U.S.P.

F.I.P. Council Meets

A meeting of the Council of the International Pharmaceutical Federation was held in Hamburg, Germany September 26-30. The Council of the Federation is composed of the officers who are also members of the Bureau which is the governing body of the Federation, together with the official delegate of the pharmaceutical organizations from countries holding membership in the Federation, and delegates from the several Sections of the Federation. Dr. Don E. Francke, Editor of THE BULLETIN OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS was the official delegate of the Press and Documentation Section of the Federation. The members of the Press and Documentation Section also held an official meeting in Paris October 4-6 in which Dr. Francke participated. The principal item of discussion at the Paris meeting was plans for the reorganization and improvement of the *Bulletin of the International Pharmaceutical Federation.*

Mannino Promoted at McKesson & Robbins, Inc.

Alfred Mannino, widely known as a manufacturers' and distributors' hospital representative and as a practicing hospital pharmacist, has been appointed manager of the hospital department of McKesson & Robbins, Inc., national drug wholesalers.

Mr. Mannino, who was formerly assistant manager of the department, was McKesson's hospital representative in the New Jersey area for seven years. During this period he relieved hospital pharmacists in various hospitals and attended many hospital conventions.

Mr. Mannino graduated in 1942 with the degree of B.S. in Pharmacy from the University of Iowa where

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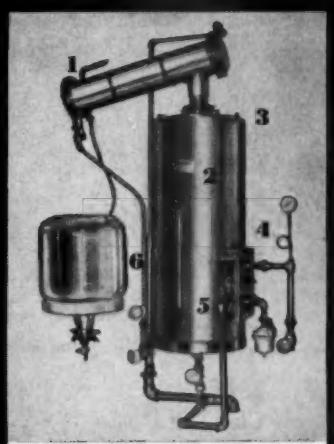

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as an undergraduate he was the first pharmacy student to play varsity football.

He enlisted in the U. S. Marine Corps the day of his graduation and spent 30 months overseas. Upon his discharge he took post graduate work at the University of Iowa and worked in the hospital pharmacy.

He spent a year as retail pharmacist in Westfield, New Jersey, and then joined Merck & Company as detail and hospital representative for 2 years before joining McKesson in 1947.

Mr. Mannino was president of the student branch of the American Pharmaceutical Association at the University of Iowa and is a member of the A.Ph.A. and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS.

Army Commissions Available to Pharmacists

Direct commissions with concurrent call to active duty in the grades of lieutenant and captain in the Army Medical Service Corps are now open to graduates of approved colleges of pharmacy, according to an announcement by Colonel Bernard Aabel, Chief of the Medical Service Corps.

"Although these commissions will be made in the U. S. Army Reserve, we are most interested in the young pharmacist who has an eye to the future and wishes to make the Army a career," declared Colonel Aabel. He indicated that the minimum period of active duty was for two years, but at the expiration of eighteen months each officer could make application for the Regular Army.

Selected applicants will not only be assigned to pharmacies, but will also have an additional opportunity for assignments in medical supply, administration, or field medical service.

Interested pharmacists should get in touch with the personnel procurement officer assigned to the nearest military district headquarters or Army area headquarters.

The commissions will be made under the provisions of Department of the Army Circular 135-17, dated March 30, 1956.

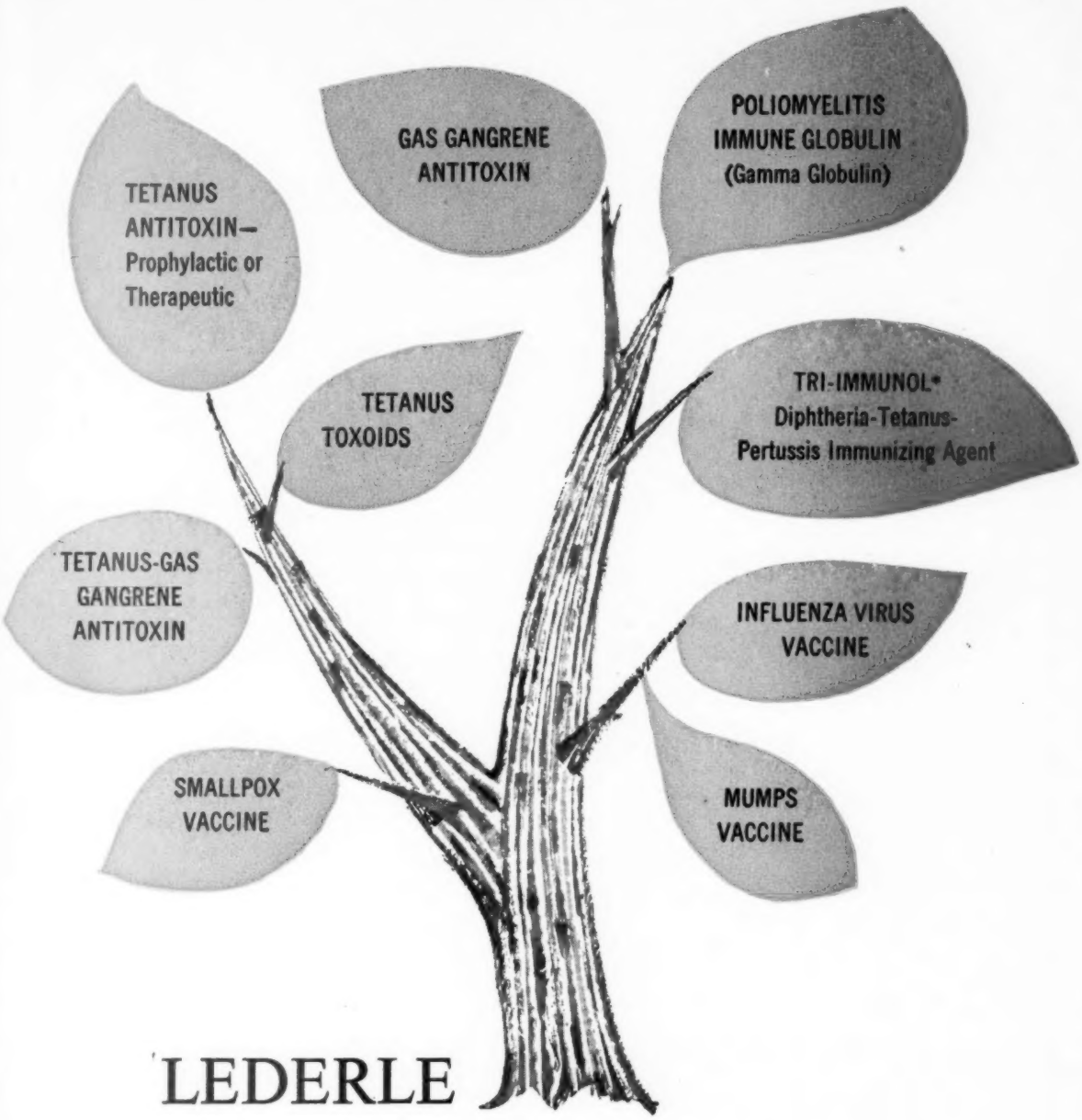
Wilinsky Honored by A.H.A.

Dr. Charles F. Wilinsky (of 16 Still Street, Brookline, Mass.), former executive director of the Beth Israel Hospital, Boston, has been selected to receive the 1956 Distinguished Service Award of the American Hospital Association.

The announcement of the award, the highest honor conferred by the Association, was made in the August 16 issue of *Hospitals,* Journal of the A.H.A. President Ray E. Brown of Chicago will present the award to Doctor Wilinsky on September 19 in Chicago at the Association's annual convention.

Outstanding in both hospital administration and in public health work, Doctor Wilinsky is the only person to have held the presidencies of the American Hospital Association and the American Public Health Association.

The Award commends Doctor Wilinsky for his early recognition of the need for coordinated activities between hospitals and health departments, and his continued devotion to strengthening this relationship.



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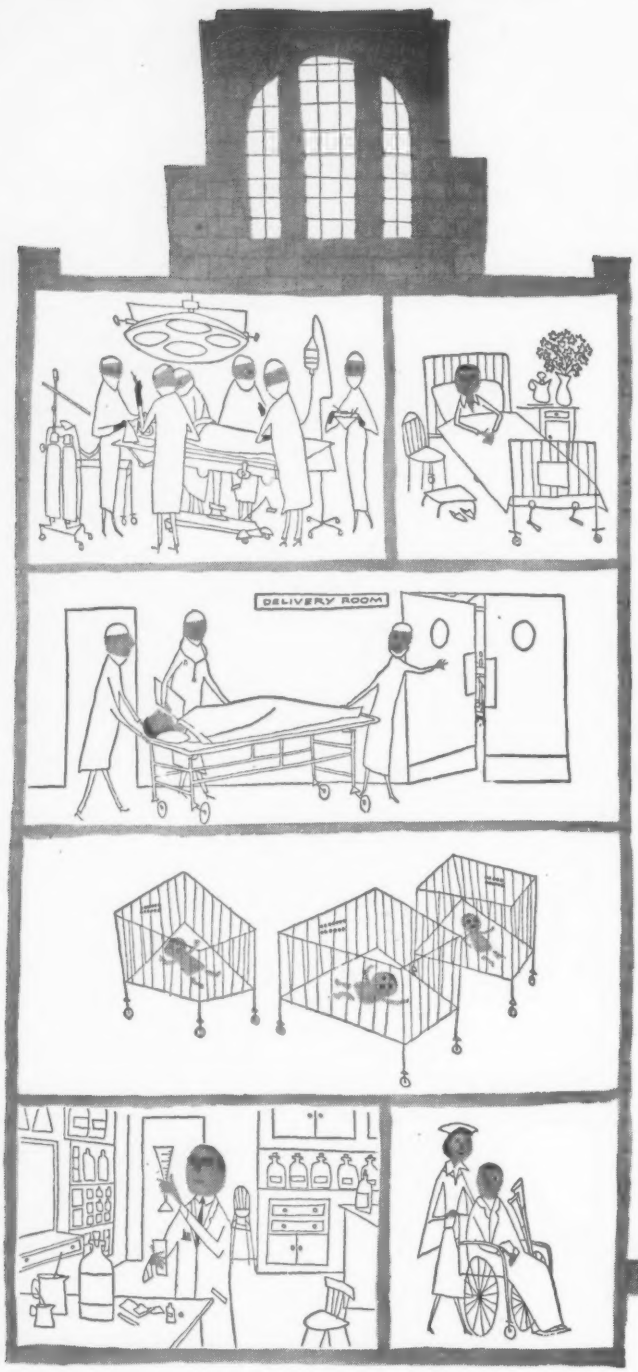

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1. *Rezek, G. H.: Am. J. Obstet. Gynecol., Vol. 66: No. 2, 396-402, 1953.*
2. *Jones, Georgeanna S. and Smith, Frank: Am. J. Obstet. Gynecol., Vol. 67: No. 3, 628-633, 1954.*
3. *Jones, Scott S.: Northwest Medicine, Vol. 54: 1253-1254, 1955.*
4. *Majewski, J. T. and Jennings, T.: Obstetrics & Gynecology, Vol. 5: No. 5, 1955.*

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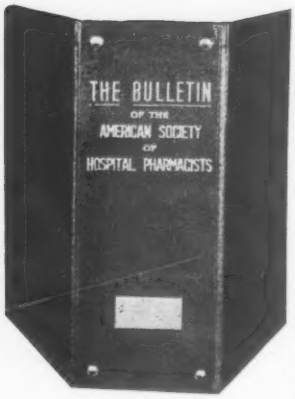

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SEPTEMBER 1, 1956

The following ASHP members have sponsored the New Members listed on this page. The officers of the SOCIETY and the Committee on Membership and Organization appreciate the efforts of the individuals who have encouraged New Members to join the national organizations. Sponsors will be listed along with the New Members in each issue of THE BULLETIN.

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Snihura, Irene, 21 Close Ave., Toronto, Ont., Canada

MEMBERSHIP DUES

New Members of the SOCIETY as well as those who are delinquent will want to note the following excerpt taken from the ASHP By-Laws, Chapter V, Article 4:

"The period of membership shall coincide with the period of membership in the American Pharmaceutical Association. Dues are payable and due on the anniversary date of this period. Membership in the SOCIETY and the obligation for dues will continue from year to year unless a member's resignation, signed by the member, is received by the Secretary prior to the end of the year for which dues have been paid.

"Any member in arrears for dues for one year shall cease to be a member of the SOCIETY, provided that at least two weeks before his name is removed from the rolls, the Secretary shall send him a written notice of his delinquency together with a copy of the By-Laws pertaining to the subject. Such a person may be reinstated as a member provided his arrears have been paid and payment of current membership dues is made."

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POSITIONS

in hospital pharmacy

POSITIONS WANTED

EXPERIENCED hospital pharmacist desires position preferably in or near Detroit. Phone Warwick 8-5595 or write to Ellen Kelley, 1303 Chandler Ave., Lincoln Park, 25, Mich.

HOSPITAL pharmacist desires position with future and security, preferably as pharmacist-administrator. B. S. 1952, Certificate Hospital Pharmacy Intern 1953, 4 years as chief. Write to Division of Hospital Pharmacy, 2215 Constitution Avenue, N. W., Washington 7, D. C. (PW-1).

POSITIONS OPEN

STAFF PHARMACIST—opening in 340-bed hospital affiliated with medical center. Dispensing, no manufacturing. No hospital experience necessary. Apply to Personnel Office, Syracuse Memorial Hospital, Syracuse, N. Y.

ASSISTANT PHARMACIST—male or female; 350-bed hospital in central Pennsylvania. Contact Robert C. Herriman, Chief Pharmacist, The Altoona Hospital, Altoona, Pa.

CHIEF PHARMACIST—new 200-bed general voluntary hospital to open for occupancy around December 15. Position open December 1. Pharmacist to have complete charge of department. Send applications to Fred K. Holbrook, Administrator, Booth Memorial Hospital, 56-45 Main St., Flushing 55, N. Y.

REGISTERED PHARMACIST for 500-bed teaching hospital. Salary range $4512-$5640; 12 days annual leave, 9 paid holidays, 15 days sick leave and other benefits. Address inquiries to Mr. Paul J. Jenkins, Director of Personnel, University of Virginia, Charlottesville, Va.

STAFF PHARMACIST—300 bed hospital. Salary commensurate with ability. Contact Leo F. Godley, Chief Pharmacist, Bronson Methodist Hospital, Kalamazoo, Mich.

The following openings in hospital pharmacy appeared in current issues of hospital publications. Anyone interested in the positions should write directly to the Agency indicated. A fee is charged when positions are secured through the services of a personnel agency.

WANTED—(a) Pharmacist for university department; Ph. D. with major in either pharmacy, hospital pharmacy or pharmacy administration; would consider one with Master's degree in same field who has completed some courses toward the doctorate; salary dependent upon teaching experience, majors and minors and recommendations. (b) Staff; pharmacy serves two teaching hospitals (approximately 750 beds) and outpatient clinics; medical center affiliated with university; pharmacy department has staff of ten; manufacturing program includes small volume parenteral solutions. (c) Chief, 250-bed general hospital; building program will include new department; college town, West Virginia. (d) Assistant chief, 400-bed teaching hospital affiliated university medical school; South. (e) To take charge small hospital expanding to 60 beds including new pharmacy; small town located on Columbia River, Oregon, short distance from Portland. (f) Staff, 300-bed general hospital; California; minimum $450. (g) Chief; new general hospital, 275 beds; college town, South; $500. (h) Staff; 300-bed general hospital; college town, Ohio; $5000-$6500. (i) Assistant; 250-bed community hospital; if experienced $5000; otherwise $4200; university city, South. (Please send for our Analysis Form so we may prepare an Individual Survey for you.) Medical Bureau, Burneice Larson, Director, Palmolive Bldg., Chicago, Ill.

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SEPTEMBER - OCTOBER 1956

American Sterilizer Company
ASPF Technique, 436

Ames Company, Inc.
Clinistix, 432
My-B-Den, 428

Astra Pharmaceutical Products, Inc.
Xylocaine, 438

Barnstead Still and Sterilizer Company
Barnstead PMB-25, 492
Barnstead "15", 493

The Burnet Company
Rotax Tablet Counter, 491

Ciba Pharmaceutical Products, Inc.
Ecolid, 430-431
Pyribenzamine Injectable Solution, 425
Ritalin, outside back cover

Cutter Laboratories
IV Solutions, 433

Drug Industries Company
Di-SoSul, 490

Eaton Laboratories
Furadantin, 416

Hoffmann-La Roche, Inc.
Gantrisin, 440
Synkayvite, 496

Hynson, Westcott & Dunning, Inc.
Lutrexin, 497

Lakeside Laboratories
Mercuhydrin, 427
Neohydrin, 427

Lederle Laboratories
Biologicals, 495
Folbesyn, 489

Lehn & Fink Products Corporation
Amphyl, 494

Eli Lilly and Company
Vitamin Products, inside front cover

Merck Sharp & Dohme
Alflorone, 421; Cortone, 421, Deltra, 421
Hydeltra, 421; Hydrocortone, 421

Organon, Inc.
Cortrophin-Zinc, 437

Parke, Davis & Company
Carbrital, 442

Popper & Sons, Inc.
Bottle Washer, 499

Schering Corporation
Chlor-Trimeton, 435
Library of Medical Films, 419

Smith, Kline and French Laboratories
Thorazine, 423

E. R. Squibb and Sons, Div. of Mathieson Chem. Corp.
Medical Motion Pictures for Hospital Showings, inside back cover

Travenol Laboratories, Inc.
Incert, 429

Upjohn Company
Kaopectate, 439

Winthrop Laboratories
Zephiran, 434